The Liminal Landscape of the Maya Sweatbath

written by
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Abstract

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This dissertation investigates the ancient healing tradition of the Maya sweatbath, its landscape, and rituals, which after three millennia is still practiced today among the contemporary Maya. Frequently overlooked because of its size, the ancient Maya sweatbath’s location in ancient ceremonial cores, royal courts, and near important ritual structures and sacred water features accentuates its importance and need to understand its role, siting, and connection with the landscape. A three step approach of rooting, projecting, and transcending is applied to the investigation’s structure for examining the sweatbath’s conception as the womb of Mother Earth, the structure as a replica of the cosmos, the liminal landscape tethering together water, topography, and the celestial domain, and rituals of purification, healing, and transformation. In addition, the ancient Maya site of Yaxchilán and its three sweatbaths serves as the epicenter, the investigation’s initial point of beginning, from where projections are made outward to twenty-eight additional sweatbaths augmenting and defining the scope of sweatbath features and site conditions. A combination of archeological drawings, architectural and landscape plans and sections, ethnographic and ethnohistoric texts, and epigraphic interpretations are examined, in combination and juxtaposition, as a means for integrating the symbolic and physical layers, which in union compose a complimentary narrative highlighting liminality as a principal quality encompassing the sweatbath. Liminality, associated with transition and transformation and fundamental to the Maya notion of gestation and creation of the cosmos, is revealed and demonstrated through the cyclical and everchanging nature of the sweatbath landscape of earth, water and sky, and reflected in man’s inherent life processes and fundamental to the sweatbath rituals’ symbolism of rebirth and renewal.
This work is dedicated
to

My Mom-my Moon.
May you always illuminate the sky.
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“The medical establishment has become a major threat to health,” is the opening statement in Ivan Illich’s book *Limits to Medicine: Medical Nemesis: Expropriation of Health* in which he explores major philosophical and societal flaws with modern healthcare. Strengthening this statement is the fact that most healthcare landscapes are not designed for health and healing. Like healthcare’s conception of the human body as an assembly of organs, contemporary healthcare settings are a conglomerate of buildings, fragmented and experientially disorienting, sealed off from the outside, and commonly surrounded by a sea of parking lots. Vegetation, if present, is treated as an amenity that can be added or subtracted, and merely an exterior decoration at entrances and seen in the distance, not accessible to the patients, the friends and family, or medical staff, to whom it benefits. Modern medicine is capable of performing miraculous feats and improving our quality of life, however, it fails to recognize a myriad of factors outside its realm significantly impacting health and healing, the landscape being one.

Juxtaposed to this is the Maya sweatbath, an ancient place of healing and tradition practiced for over 3000 years; its landscape is essential to health and healing. Suffused with meaning, the sweatbath is a simple structure, embedded in purification rituals, and although very small, it is prominently located in the ceremonial cores and elite courts of the ancient Maya cities. For the Maya, purification is likened to death, transformation, and rebirth, and similar to the transformation of a corn seed into a plant, sacred waters envelop the body inside the sweatbath transforming the individual into something new and into a pure form. Sustaining and perpetuating life is fundamental to the sweatbath’s healing ritual in its historic and mythic context. Restoring the body’s equilibrium by eliminating impurities is the sweatbath’s main purpose, and it simultaneously purifies the bathers corporeally and spiritually; a warm soul is a healthy body. The sweatbath ritual heals and cures a range of illness, diseases, and injuries, aids in rehabilitation, facilitates childbirth and recovery, is used for therapy and hygiene, and purifies individuals before important rituals. It heals by working with the body’s natural functions; the body is heated *up and sweats*, purifying itself. The sweatbath structure reflects the Maya’s conceptions of health

and healing and it relates to the human body. Its existence today demonstrates its ability to adapt and change, yet remains vital to Maya health and healing, retaining essential qualities that still define it today.

The sweatbath structure and ritual are fully integrated and reflected in each other, yet when contemplating clues about the landscape, it was realized that the landscape was absent from the majority of the sweatbath illustrations and drawings. The most recognized image of the sweatbath, found in the Codex Magliabechiano, is an illustration of a typical sixteenth century Aztec sweatbath with various rituals being performed and graphic representations of steam, speech, movement, and illness. However, there is no context given to the sweatbath setting. Mark Child, a Maya archaeologist, has drawn many beautiful plans, sections and elevations of the eight Piedras Negras sweatbaths. They are rich in archaeological details; the illustrations depict architectural features such as the composition of each stacked stone wall, the height where the spring vaults begin, and the various debris layers, but the drawings extend only slightly beyond the building’s façades and terraced platforms. Numerous drawings like these exclude the surrounding landscape. The closest example of a sweatbath shown in its environment are in Child’s axonometric renderings, depicting the Piedras Negras sweatbaths in the ceremonial core amongst other buildings to illustrate its prominent location, however, he does not elaborate on the landscape, the topography, natural features, or orientation. Although ample information exists about the sweatbath’s uses, rituals, and construction, descriptions of the landscape are omitted from the literature and research. If the sweatbath is meaningfully designed and constructed, what qualities compose the sweatbath’s landscape, and what role, if any, does it play in health and healing?

0.1 Societal Problems with Modern Healthcare and a Reflection of Ancient Health and Healing

In Limits to Medicine; Medical Nemesis: Expropriation of Health Ivan Illich argues that the combination of politics, pharmaceutical companies, and healthcare professionals has mystified health and healing, making it accessible only through qualified health professionals. He applies the term iatrogenesis, iatros, Greek for “physician” and genesis meaning “origin” to describe the “epidemic” of medical professionals controlling health, and many of their diagnoses and therapies causing damage instead of repair. Healthcare has become a catch basin designed for the lowest common denominator, and thus the treatment for the one out of the thousands at risk is administered to everyone even when the losses outweigh the gains. The emphasis is on surgeries and medications, interventions that too frequently are followed by a series of interventions, and furthermore, treatment today often masks the symptoms, instead of curing them, not unequivocally benefiting the patient. Singling out a health problem without understanding the implications of the whole forces patients to return for the same or related illness.

Another contributing factor to a broken healthcare system Illich believes, is the passive patient, the individual who believes health and healing is dependent on doctors, surgeries, and medications. Passive patients do not take command of their own bodies, partake in self-healing, nor strive to cope with an illness without a doctor or medication. Illich explains, “social iatrogenesis is at work when healthcare is turned into a standardized item, a staple; when all suffering is ‘hospitalized’ and homes become inhospitable to birth, sickness, and death…or when suffering,

4 This conversation acknowledges modern medicine’s achievements and vital role in society, especially in acute and emergency situations. However, healthcare is less effective in dealing with chronic problems and everyday health.
5 Illich, Limits to Medicine, 3.
6 Ibid., 33.
mourning, and healing outside the patient role are labeled a form of deviance.”

The result is a society reliant on the medical profession for everyday healing, unaware of the body’s strengths and capacities, and shifting the attitude about the body to be “perceived as a machine run by mechanical and manipulating switches.”

Today healthcare emphasizes empirical data as a measure of the body’s health, ignoring the spiritual, emotional, and environmental aspects impacting health and integral to healing. In the *Enigma of Health* Hans Georg Gadamer explores the notion of health as an equilibrium, a balance established by the nature of the body. He emphasizes the importance of understanding the whole, the body and environment, through *hole ousia* Greek meaning “the whole of being” and “hale and healthy being.” When one’s body is in equilibrium health goes unnoticed, but a disturbance causes a bodily awareness because of a lack. Gadamer emphasizes the body’s own strength in restoring equilibrium, healing, and recovering, by quoting Heraclitus, “The harmony which is hidden is always stronger than that which is revealed.”

For Gadamer the harmony of health “is not displayed when pain is deadened or the body is numb, but when we use our inner strength to cope with imbalance and seek to reacquire harmony.” Through our “hidden harmony…we discover both the miracle of convalescence and the mystery of health,” and understand health as ours, and more within our control than acknowledged. Humans are part of nature, and it is nature within which enables our body to self-sustain and negotiate its equilibrium.

*Modern Science: Ancient Beliefs and Healing Practices*

Elusive and invisible factors significantly influence one’s health. Emotions, beliefs, religion, and stress have recently been recognized as contributing health factors, which Esther Sternberg, a scientist at the National Institutes of Health, describes in *The Balance Within: The Science Connecting Health and Emotion* published in 2001. Within the last two decades three-dimensional imaging equipment has enabled scientists to observe the brain’s electrical dance and measure minute changes in the body, such as the release of neurotransmitters, hormones, into the bloodstream. The ability to measure, identify, and map these neurotransmitters has led scientists to discover the body’s interconnectedness between systems such as the immune, endocrine, and neurological systems. Biological systems are reciprocal, producing and receiving hormones used mutually by the different systems, communicating in the same hormonal language, and thus this interconnectivity allows them to impact each other. The body’s parts are not isolated pieces, but dependent on each other for functioning and composing a whole. Emotions cause chemical reactions in the body and brain, manifesting in physical and physiological reactions, influencing the body in beneficial and/or harmful ways, what the ancients intuited over 2000 years ago. For Sternberg these discoveries prompted an investigation into the ancient healing traditions when the body was analyzed and treated as a whole: the physical, emotional, spiritual, lifestyle, dwelling, and environment. Together these factors still play a vital role in health and healing, independent of modern healthcare’s awareness.

*Ibid.*’s rhythms and cycles exert a substantial power over the human body, although

7 Ibid., 41, 58, 64.
8 Ibid., 63-65.
10 Ibid., 115-116.
11 See note 10.
12 Ibid., 116.
14 Ibid., 105.
15 Ibid., 12.
16 Ibid., 32. Strong sensory and emotional responses trigger motor responses such as an increase in heartbeat, hair standing up, sweating, and the skin flushing from an increased blood supply.
today we are generally unaware of their impact. Ayurveda medicine, the “science of life,” dating back to 3000 BC, focuses on the body’s balance, being in harmony with the universe, one’s bodily composition, and the life forces.\(^{17}\) Greek Hippocratic healers attributed health to air, exercise, food, drink, sleep, wakefulness, internal evacuations, and passions of the mind.\(^{18}\) In the medical treatise *On Airs, Waters, and Places* (400 BC), Hippocrates (460 BC - 370 BC) adds cosmic and universal forces, seasonal shifts, celestial occurrences, climatic conditions, water, wind, and soil type.\(^{19}\) In Polybus’ *On the Nature of Man: Regimen in Health* (410 BC-401 BC) diet and exercise routines were prescribed by a physician, taking into account the particular season, geographic location, age, and sex of the individual.\(^{20}\) In ancient and contemporary Mesoamerica illnesses were caused by supernatural forces, the gods, spirits, demons, witchcraft, and by natural causes such as accidents, deficiencies, excesses, and environmental factors such as sun, rain, cold, and wind.\(^{21}\) Health was conceived of as a “fluid state, resulting from a delicate, appropriate balance between a plurality of factors,” and in order to stay in good health one needed equilibrium with nature, society, and the gods.\(^{22}\) For many ancient cultures, health was understood and diagnosed from a holistic point of view: the body, soul, lifestyle, community, and surrounding environment.

Plants’ healing properties are used to achieve equilibrium when disturbances occur. Throughout Mesoamerica, herbalists are medical practitioners who cure and heal using herbal formulas derived from plant and animal bases, and in the Chiapas Tzotzil-Tzetzal communities over one hundred herbal remedies exist for use during the sweatbath alone.\(^{23}\) Ayurvedic and Chinese medicine rely heavily on herbs, spices, and oils, constituting tens of thousands of herbal recipes derived from plants, animal parts, and minerals. The ancient Greeks used medicinal plants and herbs to restore balance, and Theophrastus’ (371-287 BC) text *Enquiry into Plants* describes over 550 species of plants, their medicinal uses, and role in balancing the humors. The ancient Romans based their medicine on Dioscorides (40-90 AD), a Greek physician, botanist, and pharmacologist who developed *De Materia Medica*, a catalogue of medicinal plants from the Arabic, Indian, and Greek world.\(^{24}\) Throughout Europe physics gardens merged medicine and botany, physicians learned which plants cured certain diseases and illnesses, and in the Renaissance physics gardens were integrated into university campuses. Monastic gardens were used for prayer and also for learning about medicinal plants, and for this many Benedictine monasteries were located near infirmaries.

The landscape’s influence on health was acknowledged by the ancients as an essential component to well-being of their cities, homes, and places of healing. The ancient Roman home with an interior courtyard, like the Spanish, afforded space for a peristyle garden as a refuge from the hectic city. The Islamic paradise garden was an escape from the harsh conditions of the dry desert climate. Inside the garden walls a contrasting environment with water features and fragrant, luscious vegetation created a sensorial delight. Dwelling in the Japanese tea garden

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\(^{24}\) His writings were a principle source for physicians like Galen (129 AD - 199AD). Theophrastus’ and Dioscorides’ works continued in use for balancing the humors after the fall of the Roman Empire and remained influential until 1600 BC when a radical shift occurred in scientific thinking, attributed to Descartes.
provided a place for reflection and refuge from the stress of daily life and remains a tradition today. The ancient Greeks retreated to healing sanctuaries (aesclepios), located in the countryside where natural springs emerged.\textsuperscript{25} The ill participated in bathing rituals, a specific diet, exercise regimen, prayer recitations, and dream divination in order to recover health.

The city and dwelling where one lives and works impact health. Illich expresses the vital role the environment plays, writing “for more than a century, analysis of disease trends has shown that the environment is the primary determinant of the state of general health of any population... food, water, and air, in correlation with the level of sociopolitical equality and the cultural mechanisms that make it possible to keep the population stable,” determine the health of a society and is a factor in increasing life expectancy.\textsuperscript{26} In the early 20\textsuperscript{th} century one of the driving forces in the modern movement’s social agenda was to provide clean air and sanitary and affordable housing to all classes of individuals. During the 18\textsuperscript{th} and 19\textsuperscript{th} centuries large masses of people migrated to urban areas, many living in poverty with cramped, substandard conditions, poor hygiene, and poor nutrition, which contributed to the spread of tuberculosis.\textsuperscript{27} The devastating combination of tuberculosis with industrialization of the 19\textsuperscript{th} and 20\textsuperscript{th} centuries led it to its epidemic state. During the 19\textsuperscript{th} century, each year an estimated seven million people were dying worldwide with the highest infection rates in the large urban centers.\textsuperscript{28} A global estimate of 100 million people died from tuberculosis in the 1900s, and in Europe, this widespread devastation created panic that the entire European civilization would be eliminated.\textsuperscript{29} Within the framework of tuberculosis, industrialization, and the destruction of World War I, Le Corbusier and other modernist architects felt they were upon a historical intersection where architecture had not only had a social purpose, but a moral obligation to improve living conditions and health for citizens of all classes. With technology and standardization the new dwelling would be full of sunlight and fresh air and the surfaces would be smooth and clutter-free, as to not attract disease-causing dirt. They believed one’s dwelling influenced health, one’s emotions, habits, and daily life.\textsuperscript{30} The city would be organized, verdant, and healthy. While the modernists did not cure tuberculosis and it was still not entirely understood how tuberculosis spread, they recognized the importance of clean air, water, and soil (for food), and the impact it had on the health of city, its buildings, and its citizens. These same virtues of the designed environment were extolled over the centuries by Vitruvius, Alberti, Palladio, and John Evelyn, among others, in their architectural treatises.\textsuperscript{31}

Hospitals and healthcare settings are not only where medical procedures and treatments are performed, but where people recover and rehabilitate. During the Renaissance, the architect Antonio Averlino, known as Filarete, designed the hospital Ospedale Maggiore in Milan, desiring “a structure capable of offering an environment both effective in preventing the spread of infectious diseases among the patients and also proactive toward their recovery.”\textsuperscript{32} In the 17\textsuperscript{th} and 18\textsuperscript{th} century large municipal hospitals had interior courtyards, akin to Filarete’s Ospedale Maggiore, and in the 19\textsuperscript{th} and early 20\textsuperscript{th} century hospitals were pavilion style, allowing fresh sunlight

\begin{thebibliography}{9}
\bibitem{25} Smith, Clean, 83. Not unique to the Greeks, water’s symbolic meaning of purification and cleansing too, “was a primordial thing that flowed across all the social and semantic boundaries: it cooled, cleaned, refreshed, comforted, and soothed the body and soul; and it was, as we know, the focal point of most purification ceremonies, when it took on a simultaneous divine form.”
\bibitem{26} Illich, Limits to Medicine, 21.
\bibitem{27} Dufault, Paul, and A. Reynolds Crane, and Oscar Feinsilver, \textit{The diagnosis and treatment of pulmonary tuberculosis, 2\textsuperscript{nd} Edition} (Philadelphia: Lea and Febiger, 1957), 15.
\bibitem{28} Ryan, Frank, \textit{The Forgotten Plague; How the Battle Against Tuberculosis was Won and Lost} (Boston: Little Brown, 1993), 8.
\bibitem{29} Ibid., 28.
\end{thebibliography}
and natural air into the setting to assist in healing. However, at the turn of the 20th century the healthcare setting experienced a radical shift, changing how hospitals functioned and served patients:

The hospital went through a remarkable physical transformation during its ascension from a place of public charity to one of practical necessity. The asylums and public hospitals of the early nineteenth century had declared their mission through their architecture. Emulating the public buildings of the period, they were places of confinement and patronizing care situated in buildings designed to evoke the generosity and public spirit of the donors and benefactors. While the well-off and middling Americans continued their practice of receiving medical treatments in the home, physicians argued that the new, more sophisticated procedures were more effective in special, monitored places. They recreated the hospital as a place where patients could be isolated without losing the comforts and atmosphere of home. Quickly, though, these early hospitals were institutionalized and sterilized. By midcentury, the hospital had been transformed into a familiar efficient, bland, and impersonal place.

In the mid-twentieth century mega hospitals became the norm and the new modernist style replaced the neo-classical building style. The high-rise hospital was utilitarian, “built in a functional style with diminishing regard for the hospital as a civic institution,” and sealed up and off from the outside because now technology provided artificial air and lighting. The exterior space became occupied with parking lots. Hospitals appeared like large corporate office complexes with little outdoor space, thus little to no vegetation. In the 1990’s there was a significant shift in response to the negative reaction to the institutional environment, and because hospitals are a business, competition shifted them to patient-centered care to accommodate the new demands.

Rachel and Stephen Kaplan’s lifetime of environmental psychology research found nature impacts health. People who had varying experiences in nature had significant improvements in mental health, and knowing there is “nearby nature” proved to reduce one’s stress level, hence improve health or at least not further compromise it. In addition, Roger Ulrich’s studies in the early 1980s showed how vegetation in a healthcare setting was beneficial to patients, family, friends, and medical staff. He showed that by providing a hospital room “with a view” to a natural setting reduced the length of a patient’s hospital stay and reduced the patient’s need for pain medication. Ulrich believes nature’s ability to “distract” engages the patient in other mental activities, shifting their focus away from their pain, reducing stress levels, and thus the actual pain felt.

Healthcare administrators translate these findings into financial benefits: shorter hospital stays save the hospital money and higher retention rates reduce money spent on training. Healthcare gardens are important to a patient’s family, friends, and medical staff and can play

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35 Ibid., 89.

36 Ibid., 89-90.


38 See note 37.

39 Kaplan, Rachel and Stephen, *The Experience of Nature* (New York: Cambridge University Press, 1989), 162-163. Ten minute breaks within one’s day to look at nature, sit amongst it, or potentially interact with it can have significant benefits to one’s overall health and well-being as it interrupts the body’s stress response and invokes the body’s relaxation response.


a critical role in the overall marketing strategy. They increase a hospital’s ability to attract and retain medical staff, provide a pleasant work place, and reduce the number of physical and verbal attacks on staff by people in emergency waiting rooms. While the landscape has received more attention because of advocates like Ulrich, even in newer hospitals it is still a challenge to integrate it into the building’s design, or more precisely, the building into the landscape. Additionally, “evidence-based design,” has created checklists of required landscape features believed to create a successful healing landscape, resulting in well-intentioned designers creating an amalgam of landscape features that do not always create a cohesive and meaningful landscape.

The landscape is one of many factors that influence health and it is still lacking presence in the majority of our healthcare settings, our places of healing. It soothes and comforts us, reduces stress levels, and improves health; we relate to it and it reveals similar life cycles. Modern science’s sophisticated technology demonstrates how numerous elusive factors such as emotions, beliefs, religion, and stress impact health, treatments, and recovery, and at microscopic levels, the interconnectedness between the body’s system and its environment can be observed, and simultaneously reveal the validity and benefits of many ancient healing traditions, affording them credibility. Sternberg’s study of ancient healing practices provided her with critical insight to question modern healthcare, and while modern science has made invaluable contributions to our lives and how we live, in particular the realm of health, as a society, we have become more disconnected from the way health is tied to the nature within and around us.

This investigation of the Maya sweatbath returns to an ancient healing practice, revealing how places of healing, specifically a healing landscape, is essential to health. It uses the basic elements of the body and life, water and fire, to produce vapor inside earth to heal the body. The sweatbath also addresses the dichotomy of the body and soul, the body building relationship, and is reflective of those who bath inside. It demonstrates how a structure becomes suffused with meaning and is embedded in a ritual landscape. The Maya are dynamically connected to the earth, the sky, and underworld, and this landscape is thick with meaning, not merely the presence of the physical, but the composition of its layers. This research explores the sweatbath’s landscape, what the landscape is to the Maya, connections the sweatbath structure has with its landscape, how its physical qualities intertwine with the mythological and symbolic, and it as an expression of health and healing.

0.2 A Return to the Ancient Healing Traditions: The Maya Sweatbath

The Maya sweatbath is an ancient healing tradition, enduring for over three millennia throughout Mesoamerica as a purification and healing ritual. Although its use has diminished, it is still practiced today in the Maya communities in Chiapas, Guatemalan highlands, and throughout central México. The sweatbath is used for hygiene, therapy, childbirth, preventative and curative purposes, and spiritual purification. Different names exist for the sweatbath dependent on the specific indigenous dialect, however, in Spanish it is most commonly referred to by its Nahuatl name, *temazcal*, *temaz* meaning “bath” and *calli* meaning “house,” or “little house like a stove, where they bathe and sweat.” In Maya hieroglyphs it is identified as *pibnaah*, *pib* meaning “a very hot bath for women” and *naah* meaning “house.” The sweatbath structure is typically

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42 Ulrich, “Current Research for Healthcare Facilities.” Nurses who work in the ER have specifically chosen to work at hospitals with waiting rooms overlooking vegetation and a waterfall. For example, when a hospital loses a nurse, it is estimated to cost around $100,000 to hire another qualified staff and provide training.
43 Marcus, “History of Healthcare Facilities.”
44 The Mesoamerican area is discussed later in the chapter.
45 Molina, Fray Alonso de, *Vocabulario en lengua castellana y mexicana y mexicana y castellana* (México City: Editorial Porrúa, 1970), 98; Macina, *El Temazcalli mexicano*, 30-31. Nahuatl was the language of the Aztec when the Spanish arrived in the New World. It was the language used to record a significant amount of information about the native people in Mesoamerica, and is still spoken today.
small and compact, with a low narrow doorway, low ceiling, and an internal firebox where fiery rocks are placed and water is poured over them. The ancient sweatbath is predominantly rectangular in form and made from stacked limestone walls covered in plaster. It has a Maya arch vaulted ceiling, benches inside straddling the drain, and a firebox centered and towards the back of the chamber. Contemporary sweatbaths exist in many forms such as circular, rectangular, hexagonal, and are constructed from a range of materials such as stone, brick, mud, adobe, and volcanic rock. Bathers lie down on benches or mats or sit up because it is impossible to stand upright inside most sweatbaths. The tight narrow doorway helps prevent the heat from escaping and forces the bathers to enter and exit in a tucked position, crouched over, or on their hands and knees.

Before the sweatbath ritual begins the hot rocks are heated up in an internal or external oven. Copal incense is burned inside to purify the air, evoke the gods’ presence because the incense’s odor is considered food for the Maya gods, and the copal purifies the bathers before they enter the sweatbath. With the fiery rocks in the firebox and the bathers inside, the door is shut and dry heat radiates from the rocks warming up the space. After a short while, herbal infused water is poured over the fiery rocks, which emit vaporous blasts that envelop the bathers and make their bodies sweat. The humidity encases the skin, suffocating the pores, causing the body to heat up, blood circulation to increase, and toxins and impurities to be released as the body sweats. Gradually the body adapts and more fiery rocks are placed in the firebox, increasing the production of heat and vapor. Herbal and vegetative branches, soaked in water, are used for their aromatic and medicinal qualities and for slapping the skin, stimulating blood circulation and further opening the pores to allow more sweat to be expelled. The duration of the sweatbath lasts from a quarter hour to several hours, initially heating up the skin, then the muscles, and lastly the bones. Upon exiting the sweatbath the bathers are wrapped in a blanket, water is poured over them, or they jump in cool water to close their open pores.

The sweatbath is used daily for health and hygiene, maintaining one’s health by frequently purging the body of impurities and warding off disease and illness. It is restorative through the use of warm herbs and teas, and in addition to its own intense heat, it helps one sweat out coldness and restore one’s warmth and equilibrium. It is therapeutic, relaxing the body, muscles, and mind, and because families bathe together, it strengthens and fortifies social bonds. In conjunction with herbal remedies, the sweatbath is used to treat and cure a range of chronic health problems, viruses, and diseases, and is a place for convalescing during recovery and rehabilitation. Childbirth and female health is one of the sweatbath’s most important and profound roles, and it is used during the prenatal, delivery, and postnatal stages of a woman’s pregnancy. Through a series of baths it cleanses the mother and baby, purifying them for integration into their community. Purification enables bathers to evoke the supernatural realm, commune with the gods and ancestors, and participate in rituals and ceremonies, requiring corporeal and spiritual purity.

**Healing Traditions: Bathing**

The Maya sweatbath is embedded in the healing tradition of bathing, an ancient healing practice used to clean and purify the body and soul. Water cleanses the surface of the body, removing dirt and germs, to prevent disease and infections, and symbolically it washes away sins and filth through baptism or ablation. Ancient bathing traditions are categorized into four types: the plunge bath, the direct fire bath, the water vapor sweatbath, and mixed bath. The most ancient type of bathing is the pool or plunge bath, occurring in streams, lakes, or natural bodies of water, and most frequently used for cleanliness, predominantly in the warm climate

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regions of Egypt, Crete, Syria, Palestine, Mesopotamia, Arabia, Persia, India, and China.\textsuperscript{48} The direct fire bath, an ancient bathing practice used by the Alaskan Eskimos and North American indigenous tribes, is for pleasure and warming the body, generated by a dry heat from hot stones or fire. No water is used, but typically after the stoving, bathers jump in the snow or plunge into cold water.\textsuperscript{49} The water vapor bath is believed to have evolved from the direct fire bath, involving the union of fire and water to create an intense vapor. The Maya sweatbath belongs to this category, commonly used across Asia, Europe, North Africa, and the Americas, persisting today in primarily the colder climate regions of Russia, Sweden, Estonia, Latvia, Finland, and among North and South American indigenous tribes.\textsuperscript{50} The last bathing type is the mixed bath, pools of various temperatures, frequently housed inside impressive buildings, such as the Roman, Greek, and Turkish bathhouses. In addition to the pools, were additional social amenities such as lecture rooms, performance halls, restaurants, and exercise rooms, and bathers received massages, body scrubbing, and grooming services.\textsuperscript{51}

The Maya sweatbath is situated within a rich history of sweatbaths throughout the world. The oldest Mesoamerican sweatbath structure dates to 900 BC, found in Mesoamerica at the Maya city of Cuello, Belize.\textsuperscript{52} Herodotus (484 BC - 425 BC) describes the Scythians’ use of the steambath as means of purification during mourning, after a king’s burial, describing, “they creep under the cloths, and then put the seeds on the red-hot stones; but this being put on smokes, and produces a steam, that no Grecian vapour-bath would surpass it. The Scythians, transported with the vapour, shout aloud, and this serves them instead of washing, for they never bathe the body in water.”\textsuperscript{53} In the 1800s during the Lewis and Clark Expedition (1803 - 1806), William Bratton, a private accompanying the journey, became ill and no medication or remedy could alleviate his pain. The expedition’s gunsmith dug a deep hole, lit a fire inside, and when the earth reached a very hot temperature, he removed the fire, and sat Bratton on a chair inside the hole, covering it with willow poles and blankets. Water was poured into the hole at two intervals of forty-five minutes, creating a great vapor, and making him sweat for over an hour with a plunge bath in between.\textsuperscript{54} A day later he was nearly pain free, and a week later he had fully recovered. Florence Nightingale (1820 - 1910), a British nurse who served in the Crimean War and was exposed to horrific numbers of deaths attributed to unsanitary and poor living conditions, documents her experience, recording the powerful healing benefits of the Turkish baths and its ability to easily be created with fire, water, and a covering. Today the continuing global sweatbath practice shares similar features as described above: a small room, a hearth made of stones, a branch to slap the skin, the uses of herbs, heat generated by water and hot rocks, and its use for social, ritual, and therapeutic purposes.\textsuperscript{55}

The Maya sweatbath is currently used for spiritual purification after childbirth, before rites of passage, rites of performance, rites of initiation, baptism, for participation in important ceremonies, and for entering sacred structures. It pertains to the larger category of water purifi-
cation rituals. Full immersion in water is a common ritual for purifying an individual, once in a lifetime, at intervals throughout one’s lifetime, or before participating in worship or entering sacred structures. Thermal baths, hot springs, and caves were Incan pilgrimage destinations, and Incan priests participated in ritual baths before initiation into priesthood. In Judaism, the mikvah is a full immersion ritual bath, preferably originating from a natural source of water, and is a type of ablation restoring an individual’s ritual purity. The mikvah is used by women after menstruation and childbirth, individuals converting to Judaism, rabbis before consecration, couples before marrying, and immersion before Yom Kippur, among others reasons. Baptism in Christianity is full immersion or a sprinkling of consecrated water on the head, and is performed months after birth and when one is confirmed into the church. In the Islamic faith three types of ablutions are performed before one can participate in the five daily prayers: wudu is a partial cleansing, ghusl is a full body immersion, and tayammum is a dry cleansing. Ghusl is required after menstruation, sexual intercourse, and for those converting to Islam. In Hinduism, rivers are the removers of pollution, and in India the Ganges River is the most prominent river, where tens of millions of pilgrims pilgrimage each year to immerse their body. The Ganges River is described as the “Mother Ganges bringing life in the form of the sacred water,” a “sacred fluid,” “river flowing in heaven, on earth, and the netherworlds,” and a “liquid axis mundi.” Pilgrims bath in rivers on auspicious days, in particular when the stars are aligned or there is a full or new, so their sins will be washed away. Hindu purification is performed before rites of passage, rites of initiation, and before important ceremonies.

The Geographic Area: Mesoamerica, the Maya Area, and Yaxchilán

Mesoamerica, meaning “Middle America,” does not imply Central America, rather a cultural area including the majority of México, Guatemala, Belize, and El Salvador, and parts of Honduras, Nicaragua, and Costa Rica (Figure 0.01). It is composed of five areas: the Northwest Area, Central Plateau, Oaxaca Area, Gulf Coast Area, and the Maya area. The initial permanent settlements were based in agricultural, growing corn, beans, squash, cacao, and chili peppers. Mesoamerica, inclusive of numerous indigenous people such as the Aztec, Mixtec, Teotihuacán, Toltec, Olmec, Zapotec, Totonac, and the Maya, is a culturally and historically defined area, sharing basic characteristics such as religious beliefs, numerous deities, 260 day ritual calendar, the cultivation of corn, monetary exchange of cacao, screenfold codices, and pyramidal architecture to name a few. Linguistically Mesoamerica is extremely diverse; approximately five million people speak one of roughly one hundred indigenous languages, organized by language families, language family subgroups, and then languages. For example, Mayan is one of the fourteen Mesoamerican language families, with six subgroup families, and around thirty languages, each with their own dialectal variations and village variations.

56 Arvigo, Rosita and Nadine Epstein, Spiritual Bathing: Healing Rituals and Traditions from Around the World (Berkeley: Celestial Arts, 2003), 117-121. Lake Titicaca was considered the Inca civilization’s birthplace.
57 Ibid., 17-31.
58 Ibid., 39-43.
59 Ibid., 60. The wudu includes washing the mouth, nose, throat, the face, hands, arms, elbows, the head with water, and feet and ankles. Dry cleansing, tayammum, may be done with sand, earth, or stone.
61 Ibid., 210.
64 Schele and Miller, The Blood of Kings, 9.
66 Ibid., xvi-xvii, 168-170.
The Maya area encompasses nearly 325,000 km squared, roughly the size of New México, including the eastern portion of México, the entire Yucatan Peninsula, all of Guatemala, Belize, and El Salvador, and the western half of Honduras (Figure 0.02). Geographically, the Maya area is divided into three zones: the Pacific coastal plain and piedmont, the metamorphic and volcanic highlands, and the lowlands. It is an extremely diverse area with various climates, rainfall, geographical features, and geology. The coastal plain and piedmont is fertile land that extends along the Pacific Ocean, gently rising as it moves inland up into the volcanic highlands. The highlands are characterized with high altitudes over one thousand feet above sea level, tall mountains blanketed in clouds, deep valleys and canyons, and overall a cool climate. The southern lowlands are characterized by rain forests, karstic hills, and large voluminous rivers, distinct from the northern Yucatan lowlands where the terrain is flat to slightly undulating, where water quickly percolates into the earth’s underground rivers, cenotes, and caves, and the climate is generally very hot. Because of the tropical latitudes, the seasons shift between the rainy season, beginning in May or early June and continuing until October or November, with a two to three week break of rain in August, and the dry season, beginning in November or December and continuing until May. The rainy season is called “winter” and the dry season is called “summer,” distinct from the northern latitudes.

68 Ibid., 24.
Figure 0.02 Map of the Maya area, cities, and geographical zones
Figure 0.03  Aerial photograph of Yaxchilán and region [public domain]

Figure 0.04  Aerial photograph of Yaxchilán/Usumacinta River [public domain]

Figure 0.05  Aerial photograph of Yaxchilán [public domain]
Yaxchilán

This dissertation’s principle site of investigation is Yaxchilán, located in southeast Chiapas. Chiapas is the southernmost state of México’s 31 states, sharing its northern and western border with the Mexican states of Oaxaca, Tabasco, and Vera Cruz, Guatemala to its east, and the Pacific Ocean to its south. Yaxchilán is situated more or less equidistant from the three bodies of water encompassing Mesoamerica, the Gulf of México, the Caribbean Sea and the Pacific Ocean, although they are not equally accessible. The Sierra Madre de Chiapas Mountains extend northwest to southeast across the state and continue into Guatemala, forming an immense physical boundary, dividing the central lowlands from the Pacific Ocean. Located within these mountains are some of Chiapas’ largest cities: Tuxtla Gutierrez, San Cristobal de Las Casas, San Juan de Chamula, and Ocosingo. Chiapas also has one of the largest indigenous populations in México, and nearly one third (one million people) speak one of the indigenous languages in addition to Spanish. The indigenous population includes Mixteca, Maya, and Chiapa people who speak Tzeltal, Tzotzil, Chontol Chol, Tojolbal, and Lacandon languages among others. Dozens of Maya archaeological sites are scattered throughout the Chiapas highlands and the central lowlands including Palenque, Toniná, Yaxchilán, and Bonampak. The indigenous people no longer live in the ancient Maya cities, however, many live nearby and still revere them as sacred places, making visits to perform rituals, ask for guidance, and make offerings to the gods.

Yaxchilán is located in the Eastern Mountain Range in the Lacandon Jungle on the northern side of an omega-shaped bend of the Usumacinta River (Figure 0.03, 0.04). The Usumacinta River is the geographical and current political boundary separating Chiapas, México from its neighboring Peten, Guatemala and further north it serves as the border between the Mexican states of Chiapas and Tabasco. The headwaters begin in Peten, Guatemala, flowing north for over one thousand kilometers, through the Lacandon Jungle and around limestone hills, emptying into the Gulf of México in eastern Tabasco. The Usumacinta River accommodates the rainfall, directly and indirectly through tributaries, significantly changing the river’s volume and elevation between the wet and dry seasons (Figure 0.05). Downstream from Yaxchilán are the ancient Maya sites of Planchon de las Figuras, El Chile, and Macabilero, and forty kilometers downstream is Piedras Negras, the site with eight known sweatbaths, the largest known at any Maya site. Yaxchilán was contemporaries with other Classic Period cities such as Palenque, Toniná, Piedras Negras, Dos Pilas, Palenque, and Bonampak, and had extended communication with Calakmul, Tikal, El Seibal, El Mirador, and Uaxactun. The large amounts of rainfall provide a richly diverse habitat with luscious vegetation, over 1500 tree species and a quarter of México’s animal species, including howler monkeys, jaguars, toucans, crocodiles, butterflies, and other jungle species.

Yaxchilán was one of the most important Classic Maya ceremonial centers with major construction efforts between 450 AD to 800 AD. The majority of the structures are located on the kilometer long flat shelf called the Great Plaza, the individual truncated hilltops, and the S-curved ridgeline. Unlike its northern rival Piedras Negras, Yaxchilán spatially acknowledges the river: buildings’ windows and doorways open to the river and the Great Plaza runs parallel to it. The Great Plaza extends northwest to southeast with the buildings located primarily on the northern and southern sides, a few traversing the plaza, and a few anchoring the western end. The Great Plaza has two ballcourts, a mythological pyramid mountain, two sweatbaths, the Labyrinth, dance platforms, and numerous altars and stelae. On six of the nine truncated hilltops are clusters of buildings and along the terraces of the meandering S-curved ridgeline, ascending to the site’s highest point, are pairs or small groups of buildings. There are three acropolises, or royal courts: the Great Acropolis located on the ridgeline’s first terrace and above the Great Plaza’s central area, the Small Acropolis on a western hilltop overlooking the Great Plaza’s western end, and the West Acropolis on a hilltop west of the Small Acropolis.
Yaxchilán has a significant number of monuments, over one hundred elaborately carved stelae, altars, lintels, and hieroglyphic stairs, depicting aspects of Maya ritual life: bloodletting, warfare, women as key figures performing ceremonies, ascension rituals, and ancestor cartouches, among others. The buildings primarily have an odd number of doorways and a lintel spanning the opening. Altars are arranged in odd numbers, usually alone, but in several instances in groups of three, and located on a structure’s northern side, in the middle of a plaza, or aligned with a stairway. Stelae are humanlike, upright and vertical, and taller than the average Maya, and at Yaxchilán, the stelae are carved on two and four sides: the river-facing sides depict warriors and the temple-facing sides depict ritual events. Today the buildings no longer have their original painted stucco surface and instead their stacked stone structure is revealed. Building ornaments were molded out of stucco and plaster and integrated into the surface or as a separate piece, and while many have disappeared, several buildings still have remnants on their facades, roofcombs, and niches. Yaxchilán’s body of monuments provide details about its history, rituals, and people who once inhabited the ancient city.

Time Period

Maya history is divided into four distinct phases, each with subdivisions: the Formative/Preclassic Period (2000 BC - 250 AD), the Classic Period (250 AD - 900 AD), the Postclassic Period (900 AD - 1500 AD), and the Modern Period (1500 AD - Present). The Preclassic is characterized by intensive agriculture, the initiation of large population centers ruled and controlled by the elites, and the initiation of large-scale architectural structures, particularly in the lowlands at sites such as Tikal. During the Classic Period Maya culture flourished, their art was refined, and the hieroglyphic writings were extensive and present throughout the Maya area. Urban state societies began to emerge forming large ceremonial centers, such as Tikal, Calakmul, Palenque, and Copán, with monumental architecture and elaborate artifacts. Hereditary kingships were recorded in the inscriptions, and the elites intermarried, even amongst battling city-states, and the kings had many wives. The Classic Period is subdivided into two subdivisions: the Early Classic (250 AD - 600 AD) and the Late Classic (600 AD – 900 AD). The Early Classic was a continuation of the central lowland domination by sites such as Tikal, Uaxactun, Rio Azul, Calakmul, and Becán. The Late Classic is known as the pinnacle of Maya civilization, dynasties and independent states were defined, and immense expansion occurred throughout the Maya area, at places such as Caracol, Dos Pilas, Yaxchilán, Altar de Sacrificios, Bonampak, Palenque, Toniná, Copán, Quiriguá, and Chichen Itza. By the end of the Classic Period many of the large cities had been abandoned for reasons unknown, although several theories attribute their disappearance to a depletion of resources, overpopulation, drought, and political instability. The Postclassic Period extends up until the arrival of the Spanish and includes many sites in the Yucatán Peninsula such as Tulum and Chichen Itza. There is still a large Maya population throughout México and Guatemala, and their customs and traditional ways of life still exist, despite religious syncretism and globalization.

Sweatbath Time Periods

The sweatbath history spans all four time periods. As previously mentioned, the oldest Maya sweatbath dates to 900 BC, the beginning of the Middle Preclassic, and was found in Cuello.
Belize. Small and rounded, this sweatbath has an exterior hearth and is located in a residential patio, similar to the residential sweatbaths in existence today.\textsuperscript{75} The second oldest sweatbath known from the Middle Preclassic is Structure 605 at Dzibilchaltun, located in the northern Yucatan.\textsuperscript{76} It is a small semi-circular structure with an interior hearth and is also found in a residential patio. During the Early Classic Period there are three sweatbaths known in the central lowlands, one at Piedras Negras and two at Uaxactun.\textsuperscript{77} Uaxactun has two sweatbaths, each with a low doorway, low ceiling, and a drain, built into a terrace with a triad arrangement of temples on top. At Piedras Negras SB R-13 is located in the oldest ceremonial area with a ball court, burial shrine, and administrative buildings.\textsuperscript{78} From early in their history, the sweatbaths were located in the elite residential courts and ceremonial centers, where many appear later in the Late Classic and Postclassic Period.\textsuperscript{79}

During the Late Classic period the majority of sweatbaths were constructed at the major sites such as at Comalcalco, Copán, Palenque, Piedras Negras, Quiriguá, Tikal, Toniná, and Yaxchilán, and several sites have more than one sweatbath.\textsuperscript{80} This dissertation centers its investigation on Yaxchilán’s three sweatbaths and expands to the other sites, particularly Palenque, Chichen Itza, and Piedras Negras. Yaxchilán’s sweatbaths were constructed during the reign of Bird Jaguar IV (752 – 772 AD), during Stage Six of Yaxchilán’s development (731 - 790 AD).\textsuperscript{81} Nearby Piedras Negras constructed seven new sweatbaths, but more elaborately with a double enshrinement, or vestibule, surrounding the sweatbath chamber. Palenque’s three symbolic sweatbaths were constructed and dedicated in 692 AD, Structure B2 at the Queens Bath was constructed between 680 – 730 AD, and the royal court sweatbath was constructed later in 764 AD, although it is possible one existed prior to it in the Tower Court.\textsuperscript{82} During the Postclassic Period the sweatbath sites are located predominantly in the northern lowlands of the Yucatan Peninsula, at sites such as Becán, Calakmul, Chichen Itza, Edzna, Ek Balam, Tulum, and Uxmal.\textsuperscript{83}

\textbf{0.3 Methodologies}

\textit{Tripartite Structure for the Research}

The structure for the dissertation’s research and investigation is derived from Jan Patocka’s phenomenological text, \textit{Body, Community, Language, World}, in which he explores the process of coming to know the self and world within the three life movements of rooting, projecting, and transcending. These steps are translated to the investigation of the Maya sweatbath: the conception and structure (rooting), the surrounding landscape (projecting), and the rituals performed (transcendence). This structure is applied to the dissertation’s overall composition and each chapter’s organization of the topics. Chapter 1 describes the sweatbath’s cultural rooting, its role as a womb, the return to womb experience, and transformation and rebirth. Chapter 2 explores the sweatbath’s quadripartite design, its construction, and physical rooting to the particular site and context. Chapter 3 and 4 investigate the landscape of earth, water, and sky, which the sweatbath projects out into and which reflects back on it. Chapter 5 investigates transcendence, a liminal \textit{time and place}, evoked by the rituals occurring around and within the sweatbath. Each sweat-

\textsuperscript{75} Hammond, “The Dawn and Dusk,” 52.
\textsuperscript{77} Child, \textit{The archaeology of religious movements}, 536.
\textsuperscript{78} Ibid., 449.
\textsuperscript{79} Ibid., 446-447.
\textsuperscript{80} Ibid., 536.
\textsuperscript{81} Garcia Moll, Roberto, \textit{La arquitectura de Yaxchilán} (México City: Instituto Nacional de Antropología e Historia, 2003), 350.
\textsuperscript{83} Child, \textit{The archaeology of religious movements}, 536.
The bath is analyzed within its own unique context, role, relationship with the landscape, and rituals performed. Each chapter reiterates this structure: a discovery, the exploration of its cultural rootings, an analysis of its small scale and large scale manifestations, its presence in the three Yaxchilán sweatbaths, and lastly, the identification of similar or different patterns amongst the other twenty-eight Maya sweatbaths.

The Horizon

Patocka’s understanding of I, in the subjective sense, is derived from situating the body in the world, in its context, as the epicenter from where one receives their initial understanding. Still rooted to the epicenter, one then projects out into the world, a projection, which is not just a thing in space but, “spatial in itself and of itself, producing its location in space and making itself spatial.”84 One’s understanding of self, the responding, relating, reflecting, and gaining clarity, is achieved through interaction with others and the world, the thou dimension of the self. This shifting and movement between I and thou is achieved through the connection between seeing and moving.85

Situated within a horizon, one projects outward into the world, which in response returns back inward on the self. Because humans are not constrained to the present, they have the capacity to draw upon the past and imagine the future; one’s horizon continually shifts and transitions between the past, present, and future into a quasi-present/quasi-past state. For Patocka, “remembering is going into the horizon of the past where a course of life that once had been present is repeated in tokens, we move in the past as if it were present, hence quasi-present, going into imaginary worlds, into the world of reading, of thought sequences, of tasks not met, of duties that place us into a special space which is and yet is not.”86 Horizons contain past memories that remain alive from which one constantly draws, and the future present with possibilities to explore as if they were true realities. Horizons always exist; they are always present and movement, “leads one from experience to experience.”87

The horizon’s movement described by Patocka is not a change in location, but a transformation.88 The horizon is in a constant state of transformation, continuously aggregating new experiences, which influence how the past is drawn upon and what possibilities lay in the future; “the projection into the world never ceases, we never live in ourselves, we always live among things.”89 Patocka conceives of the horizon’s transformation, a circular shape and cyclical movement, and lends itself to the reiterative process of projection and return on self, a cultivation, essential to one’s understanding. Patocka applies a thrusting motion, suggesting a vertical and horizontal motion propelled by a force, which causes a change to one’s originating point. It is in the act of thrusting one’s dynamism, their “bodily presence and motion,” into the world and how one affects others, in particular, within the sphere of the near.90 No human is free from being influenced by others’ dynamisms, “never indifferent to each other, never alongside each other like two stones.”91 Only through thrusting, setting in perpetual motion one’s dynamism, can one participate and come to know one’s self and world.

The Three Life Movements: Rooting, Projecting, and Transcending

In the last section of Body, Community, Language, World, Patocka arrives at a triad of life

85 Ibid., 32.
86 Ibid., 33.
87 Ibid., 35.
88 Ibid., 155-156
89 Ibid., 35.
90 Ibid., 37.
91 Ibid., 66.
movements: sinking of roots, self-sustenance and self-projection, and transcendence. The first movement addresses the instinctive-affective movement of existence, “rooted in the primordial dimension of the past.” Patocka’s uses of the word *rooted* to describe one’s anchoring to earth, providing initial nourishment, and the initial sphere of exploration and basic encounters. The sinking of one’s roots is an establishment of one’s epicenter, when one’s cultural constructions inform an understanding of the world. The epicenter is where the majority of one’s mental constructs arise from, “definite conditions and definite traditions,” which provide the, “framework within which all our experiences of our capabilities for movement unfold.” The act of rooting provides one with an initial horizon, and projecting, the second movement, moves outward from this point of origin into the world, which then responds and reflects back. Corresponding to the epicenter, the place of occupation, the horizon ceaselessly shifts and transitions with each new experience and interaction with the world.

The second movement is characterized by self-projection or self-extension into the world. It involves continually thrusting, receiving, reflecting, and discovering the world, its possibilities, and the self. Patocka states that, “the projection into the world never ceases, we never live in our self, we always live among things.” Projection requires one to interact with others and the world in order to know oneself. In the act of projecting one discovers they are more of others than of oneself and more of the past than the present. If rooting is a centerpoint and a circle demarcating its context, then projecting is the radiation out from that point in all directions, like the dendrites of a neuron or a tree’s roots and branches. The centerpoint and lines represent the projections of self and the one’s connections to the past, future, others, culture, and world.

The third movement distinguishes itself from the first two movements because it is an attempt to shake earth’s dominance over one’s self instead of being anchored to it. The third movement is described as transcendence, derived from Latin meaning “to climb” or “go beyond.” It involves the detaching of one’s self from earthly needs and objects, fundamental to the self’s knowledge, in order to achieve the highest degree of transformation. Therefore, one is, “breaking of something that is external to it and yet dominates it internally.” Achieving this movement requires a profound understanding of self to break free of its previous construct and partake in the larger universal domain. As previously mentioned, the first movement is a sinking into the earth, the second moves slightly upward and outward from the epicenter, and the third movement, the transcendence, demands a strongest vertical ascension perpendicular to the earth. Rooting is one’s situatedness in the world, projecting is the outward movement, one’s interaction in and with the world, and transcending is the vertical movement, communing within the universal realm connected to one’s spiritual existence.

*Rooting, Projecting, and Transcending Translated to the Sweatbath Investigation*

The Maya sweatbath is rooted in the global tradition of bathing, more precisely the vaporous sweatbath practiced within the Maya culture. Its cultural conception, purpose, and compact design is rooted in its symbolism as a womb, a liminal place, and is expressed through the sweatbath’s structure, experience, and ritual sequence of death, transformation, and rebirth. As a place of healing, and purification, Maya conceptions of health, religious beliefs, and rituals, reinforce the sweatbath’s role within the community. The sweatbath, as a sacred quadripartite space, is embedded in Mesoamerican and Maya mythology as a replica of the gods’ original creation of the world and focuses inwards on its centerpoint, the firebox. Its impression into the earth, its physical rooting, begins with the sweatbath’s construction, which transpires within the cultural constructs of Maya architecture; it is regional, pertaining to a specific time period and a site’s de-
velopmental stage, construction techniques, materials, design, size, location, and rituals. Its rooting is further influenced by climate, winds, rainfall, sun exposure, geological layers, topography, and spatial organization.

The sweatbath is not isolated in the world, but exists in a landscape. Projecting outward puts the sweatbath in contact with the cultural and physical landscape, molding and informing the sweatbath, and vice versa, the sweatbath informing and molding it. Each sweatbath has its own unique context, predominantly located near a ball court, a temple, a dance platform, or elite housing, and together with the surrounding buildings, monuments, and artifacts they create a specific character and purpose. The built landscape is never static, but continuously evolving through the physical layering of buildings and changing landscape, keeping the sweatbath’s relationship with its surroundings in motion. At period-ending celebrations and with the installation of new rulers, the Maya constructed new buildings, added on to existing structures, and built directly on top of and over current structures. The sweatbath projects out into the broader landscape, refining its conception and rooting, through its physical and symbolic relationship with the earth, water, and sky. These landscape components reflect and strengthen the sweatbath’s liminal quality, shifting and changing with the seasons. The sweatbath, its intimate context and broad landscape, shape the events and celebrations occurring within and around it, cycling back on each other year after year, experience after experience, and ritual after ritual, an accumulation of cultural sediment charging the sweatbath and its landscape with meaning.\(^{95}\)

Ritual binds the sweatbath to the surrounding landscape and simultaneously converts the small structure into a cosmic womb, evoking the presence of an axis mundi, and enabling transcendence to the supernatural world and communion with the gods and ancestors. The purification ritual is a corporeal and spiritual purification, progressing through the stages of death and rebirth, transforming the individuals into something new, and during rites of passage, the individual requires purification and equilibrium restored, a return to the purest form in order to acquire the new identity or status.

Transcendence transpires during ritual through the presence of the human body. Sociologist, Roger Grainger in *The Language of the Rite* writes, “Ritual weaves speech, gesture, rhythm, and structured ceremony into a form of worship, which is expressive of man’s way of being in the world—that is not as an idea, but as a person...it unites his physical, mental, and emotional being in a single response to the unseen...within the specific conditions of humanness.”\(^{96}\) Deep emotional responses stir and awaken one’s spirituality, uniting the body and soul. It awakens the body’s primordial text, the divine genotext lying latent in the body, creating a feeling of “wholeness of Being,” and each reenactment, like a palimpsest, further embodies the primordial text, transmitting it from generation to generation.\(^{97}\) Philosopher, Michael David Levin explains, “what we ‘write’ into our flesh in the binding of ritual always turns out to have been ‘written’ already, ‘writ-

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95 Bourdieu, Pierre, *Outline of a theory of practice* (New York: Cambridge University Press, 2007), 79. “The unconscious is never anything other than the forgetting of history which history itself produces by incorporating the objective structures it produces in the second natures of habitus,” in each of us, in varying proportions, there is part of yesterday’s man; it is yesterday’s man who inevitably predominates in since the present amounts to little compared with the long past in the course of which we were formed and from which we result. Yet we do not sense this man of the past, because he is invertebrate in us; he makes up the unconscious part of ourselves. Consequently we are led to take no account of him, any more than we take account of his legitimate demands. Conversely, we are very much aware of the most recent attainments of civilization, because being recent, they have not had time to settle into our unconscious.”


97 Levin, David Michael, *The Body’s Recollection of Being: Phenomenological Psychology and the Deconstruction of Nihilism* (Boston: Routledge & Kegan Paul, 1985), 199; Gadamer, Hans-Georg, *Truth and Method*, translated by Joel Weisheimer and Donald G. Marshall (Continuum: London, 2004); For others such as Jung and Gadamer, the idea of primordial text or genotext gets at the subconscious, the innateness that humans have in common. Gadamer explains, “Yet we do not sense this man of the past, because he is invertebrate in us; he makes up the unconscious part of ourselves.... Conversely, we are very much aware of the most recent attainments of civilization, because being recent, they have not had time to settle into our unconscious.”
Dusting off, unveiling, and activating the primordial text is achieved through ritual, the culmination of mind, body, spirit, imagination, movement, gesture, and place. Ritual physically anchors one to place and simultaneously serves as a threshold into other spiritual domains. It transforms and transports. The sweatbath ritual binds the body, thus the bather, prompting movements, gestures, postures, and physiological responses. The sweatbath structure prompts how one enters and exits, on hands and knees in a tight position, the initial emergence into the world, and reinforces the notion of rebirth and renewal. Reenacting ritual involves knowing one’s ancestors and gods partook in the same ritual practice, of which one now intimately belongs. Repeating the ancient movements, gestures and postures, charged with meaning, activates one’s primordial text, arouses one’s physical and spiritual awareness, particular to one’s self yet universal and immense. Together the universal connection and spiritual arousal creates the experience of transcendence. The sweatbath acquires cosmic dimensions; the intimate inside becomes larger than the outside. Through inhabiting the space, bodily extensions manifest into cosmic extensions; the head touches the dome of the heavens and outstretched arms touch the four corners of the world. Simultaneously, man inhabits his world and the world of the gods.

Surveying Archaeological Drawings and Reading the Landscape

One of the primary methods used in this study is a survey of archaeological drawings from a sample group of over fourteen ancient Maya sites and thirty-one sweatbaths, a primary source, gathered, examined, and compared. Archaeological drawings and documentation are critical to this research because drawings indicate where the sweatbaths are located at a given site, provide structural dimensions and measurements, describe architectural features, and documentation, if available, reveals developmental stages and artifacts found during excavation. Soil samples are also taken to determine the presence of chemicals, and at Piedras Negras the soil samples revealed varying chemical patterns, which Mark Child, an archaeologist, believes indicate different ritual activities. Child’s dissertation, *The Archaeology of Religious Movements: The Maya Sweatbath Cult of Piedras Negras* published by Yale University in 2006 is one of the most valuable archaeological texts and body of research focused on the Maya sweatbath, in particular those at Piedras Negras. Many sweatbaths are restored or partially restored with missing features such as the roof, and archaeological descriptions often describe the physicality, without explicitly naming what they are describing, so it must be inferred and descriptions must be read juxtaposed with the drawings. Similarly, a structure’s physical attributes are described, but they do not always state what it is or what it was used for, thus one cannot always be certain what each building’s purpose was. Archaeological drawings only describe part of the narrative and it must be supplemented with additional drawings, ethnographic, ethnohistoric, and epigraphic texts and images.

The archaeological drawings of the sweatbaths were used to compose a catalog of sweatbaths and record their features. Each site selected has at least one sweatbath, although some sites have as many as three, five, and eight sweatbaths. For each site, the sweatbath’s were identified on the overall map and notes were made about nearby and adjacent structures, such as temples, observatories, ball courts, dance platforms, water features, and the royal courts. The structure’s

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99 See Appendix B.
101 Child documents the excavation process of the eight sweatbaths at Piedras Negras recording the artifacts found, constructing the architectural drawings in plan and section, and gives an extensive background of the sweatbath and its symbolic connections. He also provided one of the list of sweatbaths found throughout the Maya area that was a starting point for the gathering of the archaeological documents.
orientation was determined from the site’s overall map, and categorized into one of the eight main cardinal directions. Plans and sections were also scanned, documented, and scaled to the same size in meters, and the main features such as the walls, firebox, benches, and drains were distinguished by colors so the individual features could be compared and contrasted. Photographs and renderings of each sweatbath were gathered from the archeological excavations, personal collections, and from online sources, to aid in identifying the various architectural features, the relationship to adjacent buildings, and the surrounding landscape. The sweatbaths were categorized into a particular time period and location: Preclassic, Classic, Postclassic, or contemporary, and ceremonial, elite residential, or symbolic.

Another round of analysis included the investigation of the features present in the sweatbath. While the drain is one of the most identifiable features in the sweatbath, not all sweatbaths have drains, therefore, it was recorded if a drain was present or not. The short doorway is typical of the sweatbath and there are three general variations: the square doorway, which is the smallest, the short doorway which is the most common, and tall doorways which are close to the average building doorway height. The number of doorways are counted because some sweatbaths are housed inside a larger structure with rooms for changing and resting, and there are variations of one, two, three, and five openings or doorways. Many Maya buildings and stelae are elevated on terraces of varying heights, and many sweatbaths are located on terraces, therefore they were categorized as on a terrace or no terrace, and if on a terrace, it was qualified as a short or tall terrace. This survey provides a list of the typical features and highlights the anomalies. This data is in an Excel spreadsheet, which can be easily rearranged and organized to observe various patterns across time and region. The information discovered in this survey supplements the text in Chapters One through Five.

Throughout the text each sweatbath is referenced by its site first, SB for sweatbath, and the structure’s number, usually given by the archaeologist. For example, Yaxchilán’s Structure 17 is a sweatbath and is referenced as Yaxchilán SB 17. I have included SB to make explicit sweatbath structures, however, the exception is at Palenque where the three symbolic sweatbaths are called by a name: Temple of the Cross, Temple of the Foliated Cross, and Temple of the Sun.

Architectural Drawings

For architects and landscape architects drawing is a way of learning, exploring, and understanding relationships. The act of drawing prompts one to acknowledge the parts of a project, the relationship among the pieces, scale, quality of a space, play of light and shadow, materiality, and activities and movement through a space. Plans, sections, elevations, perspectives, and axonometric drawings are tools for exploring spatial, experiential, hierarchical, qualitative, and topographical relationships. In this investigation drawing is a predominant method employed to explore the sweatbath’s connections with the landscape. The sweatbath landscape is predominantly drawn and analyzed in section and plan digitally and by hand, using a variety of media such as ink, pen, pencil, texturized materials, AutoCAD, Photoshop, SketchUp, and Starry Night Pro. Plans were studied and created throughout each stage of the investigation, examining the sweatbath’s location within the context of each site, determining water flow and water features, topographic changes, and the alignment of certain buildings with the celestial bodies. A few sweatbaths did not have pre-existing plans, therefore, for this study they were measured on site and later drawn in AutoCAD.

Section drawings are a vertical cut through a building or landscape, and in this investigation they reveal the sweatbath’s interior, the spatial relation between it and other buildings, the scale of the landscape, the topography, the fluctuating water level, differences between the summer and winter oriented buildings, and generally emphasize the sweatbath’s location in
prominent places. The construction of the section drawings required a designated cut line, topographic information, building locations, building heights, building material, and water levels. A survey of the section drawings together revealed the sweatbath’s topographic relationship and connection with water. The sections are perhaps one of the largest contributions from this research because very few landscape sections exist in the Maya literature, and they reveal a physical condition otherwise overlooked.

Fieldwork

Site verification, in particular to Yaxchilán, was essential to the completion of the dissertation. Buildings were verified, measured, orientations were taken from a compass, and panoramic photographs were taken of the structures and the surrounding landscape. In total, sixteen out of the thirty-one sweatbaths at eight sites were verified and photographed in person.

0.4 Resources

Ethnohistoric Texts

A major resource for understanding the Maya sweatbath is through an examination of ethnohistoric texts, the ancient natives codices, and colonial manuscripts. These primary sources provide abundant details and images of the sweatbath describing its uses, rituals, construction, and associated superstitions as it was nearly 500 years ago or longer. The images are key in providing many levels of details: attributes of the physical structure, symbolism, animation, range of people participating in numerous rituals, clothing worn, what they are drinking, the presence of fire, water, and steam, image of the sweatbath goddess, recitation of prayers, and so on. Because the ancient native codices are from various groups in Mesoamerica, and while they share many similar beliefs and calendar, they are different with different languages, and therefore, are identified by their appropriate tradition when known. Ancient native codices are difficult to comprehend because they are pictorial, using signs and symbols for people, years, places, events, and names, which must be interpreted, and thus are not legible without this knowledge. Interpretations of these texts and narratives by scholars are valuable to understanding the images and narratives. Written texts, in particular the colonial manuscripts, are in Spanish or translated into the native language by the Spanish priests and native informants, and describe the sweatbath’s uses, its religious and social meaning, rituals, association with birth and the midwife, the health benefits, herbal remedies, and provide a glimpse into the Spanish opinions about the sweatbath. Ethnohistoric texts about the past and the ethnographic texts about the present, work together to show continuity and change in relation to the sweatbath and Maya life.

The Pre-Columbian manuscripts are called codices derived from the Latin word caudex meaning “a trunk of a tree,” “wooden tablet, book, or code of laws.” These codices are divided into four groups: the Maya, Mixtec, Borgia, and Aztec. The Maya codices are made from the inner bark of fig trees, treated with a lime-like coating, and written and painted on with brushes using black, blue, green, red, and yellow ink. They are screenfold like an accordion, predominantly vertical and often around four inches wide by nine inches tall. There are only three, perhaps four, surviving Maya codices: the Dresden Codex, the Paris Codex, the Madrid Codex, and the Grolier Codex (possibly the fourth). Few survive today because many of their texts were burnt and destroyed by the Spanish or decomposed over time. Mixtecs are a group of people who belonged to southern and central México, today what is Oaxaca, Guerrero, and Puebla, reaching their peak around 950 AD - 1521 AD. They had all-

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102 Some of the topographic maps are at smaller contour intervals therefore more minute changes in the landscape are noted, while those at larger scale are not detected. The overall elevation and lay of the land is the same.
104 There were some taken to Europe, however, they were neglected and many lost during World War II.
ances with Tolteca-Chichimeca to the north and the Zapotecs to the east. The Mixtec codices are made of animal hide, covered in a gesso-like foundation, and painted in blacks, blues, greens, yellows, oranges, and reds. Similar to the Maya codices, they are screenfold pictorial documents, however, these pages are predominantly horizontal instead of vertical. The Mixtec codices are generally historical, providing biographies, genealogies, and ritual accounts. They were used as storyboards and scripts during celebrations and feasts, which were read aloud while music was played and actors performed the narratives. The Mixtec codices include the Codex Vindobonensis, Codex Zouche-Nuttall, Codex Bodley, Codex Selden, Codex Colombino, and Codex Becker I and II. The Codex Zouche-Nuttall has three sweatbath images, and is important to this dissertation. The people and gods depicted in these codices are identified by their calendrical name and the rituals they perform, accompanied with day signs, year bearer signs, and place names.

The Borgia group codices are pre-Columbian codices written by the Mixtecs and Aztecs, predominantly used for divination, calculating rituals, celebrations, prophecies, diseases, and feasts. They contain the 260-day ritual calendar and the quadripartite cosmological diagram. These texts, used by palace diviners, midwives, and curers, are the Codex Borgia, Codex Vaticanus B, Codex Laud, Codex Fejérváry-Mayer, and Codex Cospi. The Aztecs inhabited central México and were thriving when the Spanish arrived, and shortly thereafter were conquered. The Aztec’s primarily pictorial codices, pre-Columbian codices and colonial-era codices, are a mixture of text and image, describing the Aztec customs, history, cosmological beliefs, rituals, celebrations, and daily life. There are many colonial Aztec codices, including the Codex Borbonicus, Codex Mendoza, Codex Magliabechiano, and Aubin Codex to name a few, which provide several sweatbath images and descriptions about the rituals.

The Spanish priests, with the aid of native informants, wrote numerous manuscripts accompanied with images, documenting the natives’ lives and customs. One of the Spanish priests’ biggest challenges was the language barrier, and therefore, they were accompanied by a native bilingual informant and after the Spanish had established themselves language classes were given to the newly arrived to acquire the indigenous languages. The information recorded in the manuscripts was a mixture of the Spanish’s interpretation of what they observed and understood, and what the informants described to them. The most important manuscripts for understanding the sweatbaths are the following: Bernadino de Sahagún’s The General History of the Things in the New Spain, or the Florentine Codex, Diego Durán’s Book of the Gods and Rites and the Ancient Calendar and The History of the Indies of New Spain, Diego de Landa’s Relations of the things of the Yucatán, and Francisco Javier Clavijero’s The Ancient History of México.

The Popol Vuh is a Maya creation narrative copied from an original Quiche manuscript by
a Spanish friar, Francisco Ximénez, between 1701-1703.\textsuperscript{112} He translated it into Spanish, which was later translated into English. This narrative has proven its veracity as many images found on vases, murals, and stone inscriptions recovered during the Preclassic and Classic time periods explain and depict the stories accounted in this text.\textsuperscript{113} An additional colonial Yucatec Maya text containing important references to Maya cosmology, life, and customs is The Book of Chilam Balam of Chumayel.

**Ethnographic texts**

The study of ethnographic texts provide valuable insight into contemporary Maya communities, descriptions of their practices, meanings for their actions, and reveal their way of thinking about and relating to their world. Great details are gleamed from these works such as their agricultural process, agricultural rituals, degree of religious syncretism, conceptions of the celestial bodies, roles of the different members, how time is calculated, and so on. When communities or groups of people are juxtaposed similar ideas emerge although with their own unique nuances, and because Mesoamerica is so diverse geographically, ethnically, and linguistically, each with its own subdivisions, the study of one group cannot be applied to all, even though some general overarching ideas are similar.

One of the principle ethnographic texts on the sweatbath is Kevin Groark’s *To Warm the Blood, to Warm the Flesh: The Role of the Sweatbath in Highland Maya (Tzeltal-Tzotzil) Ethnomedicine* which he wrote for his master’s research.\textsuperscript{114} It focuses predominantly on the sweatbath’s health and healing aspects, but Groark also includes its historical accounts, construction techniques, and many rituals associated with the sweatbath. Sheila Cosminsky, an American anthropologist and sociologist, has worked extensively in the Chiapas and Guatemalan highlands with Maya midwives, learning about their role in healing, childbirth, childbirth rituals, and she documents the sweatbath’s use for physical and spiritual reasons.\textsuperscript{115} Rafael Girard, a Swiss anthropologist, lived amongst the Ch’orti’ Maya and recorded extensively the agricultural process, timing of the festivals, different roles and relationships between the community members, celestial bodies’ movement, and how they were used to determine the beginning of the wet and dry seasons.\textsuperscript{116} These texts along with dozens more supplement the research and knowledge.

**Epigraphic and hieroglyphic texts**

The Maya had a complex hieroglyphic writing system, which within the last half century scholars have made significant progress decoding, detecting, formulating, and interpreting the meaning behind the rows of elaborate hieroglyphs. They provide vital information scholars use to comprise historical and social narratives, timing of events, names of the leaders, royal ancestral lineages, and so on. It has accelerated the knowledge about the Maya, however, because these texts are interpretative there is also disagreement about the meanings, and the discoveries and interpretations are ever-evolving as more knowledge is acquired. The hieroglyphic texts and epigraphic studies are critical to this research because they reveal a layering of symbolism and mythological narrative embedded in the sweatbath landscape, which would otherwise be inaccessible

\begin{footnotes}
\item[113] Ibid., 16.
\item[116] Girard, Rafael. *Los Maya: su civilización, su historia, sus vinculaciones continentales* (Mexico City: Libro Mexico, 1966); Girard, Rafael, *Los Chortis ante el problema maya: historia de las culturas indígenas de America, desde su origen hasta hoy* (Mexico City: Antigua Librería Robredo, 1949).
\end{footnotes}
and excluded from the discussion. Palenque in particular has an abundance of hieroglyphic texts, tablets, and images directly associated with the three symbolic sweatbaths’ landscapes, describing rituals, people, and timing, enabling the construction of a thorough ritual narrative transpiring in the sweatbath landscape.

Significance of Work

Investigating the Maya sweatbath landscape is important first, as a place of healing juxtaposed to the modern healthcare landscape, and second, as a Maya landscape embedded with physical and symbolic significance deserving explanation. Unlike modern healthcare landscapes, the sweatbath and landscape are integrated, instead of in isolation, strengthening its underlying meaning and significance to healing. While research has shown the health and economic benefits of views to nature in a healthcare setting, hospital administrators unfortunately focus little attention on the landscape. Compounding the problem, “evidence-based design” has begun utilizing checklists to ensure successful healing landscapes, ironically often resulting in landscapes devoid of meaning and significance. Modern healthcare is a growing industry, people are living longer because of technological advancements, more procedures and medications “fix” health problems, yet ironically our overall health is in decline. Society and our healthcare system fail to acknowledge factors invisible but contributing to health such as food, exercise, emotions, religious beliefs, and environment. We have become disconnected from nature, unaware of our connection to it, and fail to realize ways health is tied to the nature within and around us. The Maya sweatbath uses the body’s nature within and around to heal; water and fire produce vapor inside earth, heating the body and making it sweat toxins. The landscape and structure are meaningful, reflecting the body and Maya notions of healing, and perhaps through it we can gleam insight into how their healing landscapes are made meaningful.

Additionally, the Maya sweatbath’s location in many ancient ceremonial cores, near important ritual structures and sacred water features, accentuates its importance, although as a small structure it is frequently overlooked. There is a thorough ethnographic (Groark) and archaeological (Child) investigation on the Maya sweatbath, and some analysis on Palenque’s symbolic sweatbaths (Houston, Stuart and Stuart), however, an analysis of the sweatbath landscape is absent from the literature and the sweatbath drawings. Understandingly the landscape is more difficult to investigate; it is biodegradable and impermanent unlike the stone building remnants, however, landscapes include more features than plants, such as topography, water, winds, above and below the surface, natural features, buildings, and seasons, among many others. Like a text, landscapes are legible, communicating deeply embedded histories and cultural values, and through drawing plans, sections, and perspectives, these qualities are revealed. Physical relationships between buildings, topography, and orientation, for example are made visible and comprehensible in new ways. Unlike the modern healthcare landscape, isolated and disconnected, the Maya dynamically connected their world, sky, and underworld, which in section illustrates the above and below condition. The Maya landscape, thick with meaning, is not merely physical but symbolically layered with meaning, and therefore, through the act of drawing, image and word enable the symbolic to become more legible.

Creation is fundamental to Maya culture and manifests at all scales: universal and particular, physical and symbolic, and throughout mythic and historic time. It resonates throughout Maya life in areas such as agriculture, architecture, ritual, the creation story, the *Popol Vuh*, and the sweatbath. Creation is ubiquitously expressed in the sweatbath structure and ritual and core to its conceptual rooting. Conceived of as the womb of Mother Earth, the sweatbath is the birthplace of the gods, ancestors, and humans, and an *imago mundi*, a microcosm of the four-sided and four-cornered world with its central axis connecting the tripartite tiers of the world, the Maya god’s physical manifestation of the earth. The sweatbath ritual replicates the gods’ paradigmatic act of bringing humans into existence, described in the *Popol Vuh* when the gods failed three times to create suitable humans, and each time flooding the earth, filling it with darkness, and destroying the “failed” humans so the gods could begin anew.¹ Similarly, the sweatbath’s ritual is a death, the destruction of the unwanted and impure, and expressed by the body moving into the sweatbath’s darkness. Rebirth begins when sacred water and fiery rocks unite, producing a hot vapor and enveloping the body, expelling corporeal and spiritual impurities, and making one new.² Upon exiting, bathers emerge through the doorway’s tight aperture into the light-filled world, a symbolic birth resembling the mythological emergence of the corn god out of a cleft in the “First Mountain.” Mutually, the sweatbath’s architecture, ritual, and body reinforce each other as a sacred place of creation, dynamically linking the sweatbath with the cosmos, humans with the gods, and present with the past and future.

Creation themes are present in the most famous sweatbath illustration from the mid-sixteenth

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² Schele, Linda, and David Friedel, *A Forest of Kings: The Untold Story of the Ancient Maya* (New York: William Morrow, 1990), 139; Tedlock, *Popol Vuh*, 65. In the narrative’s introduction, the primordial gods of sea and sky consult with the oldest deities, Xpiyacoc, the elderly father and matchmaker, and Xmucane, the elderly mother responsible for birth, about their creation of the earth. Later in the narrative it is Xmucane, who goes to the mountain and creates the fourth generation of humans from ground corn and sacred water. The aperture where the white and yellow corn was found, described as, “a pool of still water at the heart of a cleft mountain,” was most likely a cave, and therefore the place where humans were created.
century Aztec codex, the Codex Magliabechiano (Figure 1.01). A small four-sided structure with a low, narrow doorway is radiating heat from the oven, expressed with swirls emanating upward. Preparations for the bathing ritual are occurring outside expressed by four individual’s actions; one woman is tending to a fire in the oven, another woman is reverently looking upwards and raising a painted bowl asking for a blessing as she offers the drink to a crying sick man, and floating scrolls indicate the fourth man is praying to the sweatbath goddess, whose image hangs above the doorway, her black mouth a sign she consumes the bathers’ filth. The bathers are differentiated by simple clothing covering their almost naked bodies removed before bathing, and their painted black bodies contrast with the women’s light skin. Flowing water, symbolic of fertility, is seen through the doorway and on the right, preemptively conveying the interior will be a hot vaporous womblike environment. This illustration emphasizes the sweatbath’s role in purification and healing and its connectivity between ritual, structure, body, and idea.

This chapter explores the sweatbath’s conceptual rooting as a womb of Mother Earth, its fundamental architectural features, and ritual of creation and purification. This chapter has four parts, each describing an architectural element and its ritual significance, derived from an analysis of three categories of sweatbath images: remnant ancient Maya sweatbaths, native and colonial codex illustrations, and contemporary sweatbaths. Section one describes the structure as a womb, embodying heat and manifested in the compact design, which intensifies the generated heat. Section two explores the prevalent Maya belief birth is preceded by death, represented by the doorway, a threshold between worlds. Section three explores the sweatbath’s interior features, the firebox as a transformative hearth, and the hot vapors steaming the body, enabling purification and renewal. Lastly, the drain and water flow are examined, representing emergence into the world, symbolic of birth and expressed by passing from darkness into light, a sensory awakening.

### 1.1 The Sweatbath Structure as a Womb

**Sweatbath Structure**

Containing heat is fundamental to the Maya sweatbath’s small, compact design and construction. The ancient sweatbath is predominantly a short, independent structure, with a rectangular facade, whose length is generally slightly longer than height. It is quadrilateral in form with thick rectilinear walls constructed out of cut limestone, stacked in rows, and covered with stucco, typical of Maya buildings. The sweatbath is commonly a single room, symmetrical along the doorway’s midline, with benches and a firebox inside like at Yaxchilán, Tikal, and Edzna, and sometimes benches outside, like at Piedras Negras, Chichen Itza, and Céren (Figure 1.12). Some sweatbaths are multiple-room structures with a central sweatbath chamber and additional rooms around at sites like Piedras Negras, Chichen Itza, and Palenque. Piedras Negras’ SB P-7 is the largest sweatbath presently known in the Maya region, composed of the sweatbath chamber, four large additional rooms with ceiling heights over five meters, and an overall height of nearly six meters (Figure 1.13, 1.14). The majority of sweatbaths’ roofs are no longer intact, but those remaining average around two to three meters high with an interior height slightly less.

Sweatbaths in the codex images and contemporary sweatbaths are frequently short, compact and single chambered structures (Figure 1.01, 1.02, 1.03, 1.04, 1.05, 1.06, 1.08, 1.09, 1.10, 1.11). Humans in the illustrations are as tall or taller than the sweatbath, which appears to accommodate only a few people inside. Dominican Fray Diego Durán (1537 - 1588 AD) describes the sweatbath’s compact space, “These bathhouses are heated with fire and are like small, low huts. Each one can hold ten persons in a squatting position; standing is impossible, and sitting is barely possible.” Ten of eleven codex images depict rectilinear sweatbaths, indicated by the linearity of the materials, which meet in the corners, and in the Codex Zouche-Nuttall (p 16) one sweatbath is round with curved corners and curved roofline. In the Codex Vaticanus 3773 (p 32) and Codex Borgia (p 13) the roofline has an elaborate stone detailing and a painted band.

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Nuttall, Zelia, *The Book of Life of the Ancient Mexicans, Containing An Account of Their Rites and Superstititions, pt 1* (Codex Magliabechiano) (Berkeley: University of California, 1903), 76, 77.


6. See Appendix C for codex sweatbath images and features.
below, however the other sweatbaths have a simple linear roofline (Figure 1.08, 1.09).7  Dependent on the climate and culture, contemporary sweatbaths today are rounded, rectilinear, polygonal, and conical.9

All ancient sweatbaths were made from stacked stone and covered in smooth plaster, most likely painted, and contemporary sweatbaths are made from stacked stone, brick, volcanic rock, wood, mud, adobe, and sometime times covered with a smooth surface of plaster, concrete, or stucco.9 It is not known if the ancient sweatbath façades were painted or stucco decorations or objects hung on them, however, in three codex images the sweatbath goddess’ image is hung above the doorway, and today crosses often hang over contemporary sweatbath doorways. The ancient Maya sweatbaths are often elevated on terraces of varying heights, while the codex illustrations and contemporary sweatbaths are generally flush with the earth.

Firebox and Vents
Heat and vapor are generated inside the firebox, situated in the sweatbath’s center, slightly towards the back, or on its side. The firebox’s location in ancient Maya sweatbaths is visible in plan, centered on the doorway and towards the sweatbath chamber’s back half (Figure 1.13). It is unknown where the stones were heated, however at Piedras Negras chemical residue analysis of the fireboxes registered low levels of heavy metals, suggesting the stones were heated in an external oven and brought into the sweatbath when fiery hot.10 Ten of eleven codex images depict the stones being heated in an oven on the sweatbath’s front or side and connected to the internal sweatbath chamber, and contemporary sweatbaths have both attached and external ovens for heating the rocks (Figure 1.22, 1.23, 1.24, 1.25, 1.26). Durán writes, “In the back part there is a small furnace which heats the place,” and according to Francisco Clavijero (1731-1787), a Mexican-born Spanish historian, “the place opposite to the entrance there is a furnace of stone or raw bricks, with its mouth outwards to receive the fire, and a hole above it to carry off the smoke.”11 In two codex images swirls of heat are illustrated rising from the oven, sweatbath, and vents, indicating the rocks, structure, and inside are radiating heat. Vents, depicted on the codex images and the contemporary sweatbaths, allow smoke out of the interior, and during the bathing ritual they are stuffed with plants or a cloth to keep the air from escaping. When present, the vents are in pairs straddling the doorway, giving the impression of two eyes, and in three Florentine Codex images and Codex Aubin image, the smoke exiting the vents appears like eyelashes (Figure 1.02, 1.03, 1.04, 1.11).12 Because most ancient sweatbaths’ roofs are missing, it is not known if vents were used and no vents are indicated in any of the eight Piedras Negras sweatbaths.13 However, at Chichen Itza, two “ventilators” were discovered in the sweatbath chamber’s north and south walls suggesting some ancient sweatbaths had vents.14 Ruppert, an archaeologist from the Chichen Itza excavation, believes the X-shaped stone found on the exterior was located in the ventilator as a grille.15

Heat and Form
Containing heat and creating the womblike interior are intertwined in the sweatbath’s design. The compact structure and low ceiling height keep the vapor near the bathers, intensifying the heat, and the low, narrow doorway prevents it from escaping. Construction materials and interior surfaces absorb and retain heat, contributing to the interior’s warmth. When plaster is used internally, as was in many ancient

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8 Macina, Vincenza Lillo, El Temazcalli mexicano: Su significación y su uso psicoterapéutico pasado y presente (México: Plaza y Valdés Editores, 2007), 41.
9 Adobe is a straw, clay, and water mixture typically used throughout the Maya region and North America.
10 Child, The archaeology of religious movements, 395. The sweatbaths had high pH levels in the firebox indicating there was burning inside. If the stones had been heated with religious movements, 395. The sweatbaths had high pH levels in the firebox indicating there was burning inside. If the stones had been heated with
15 Ibid., 82-83.
Figure 1.01 Image of Aztec sweatbath and rituals, *Codex Magliabechiano*, 77
[used with permission from FAMSI]

Figure 1.02 Image of Aztec sweatbath, men bathing, *Florentine Codex*, Volume 3, Book 10, Folio 241
[fair use]

Figure 1.03 Image of Aztec sweatbath, men bathing, *Florentine Codex*, Volume 3, Book 11, Folio 180
[fair use]
Figure 1.04  Image of Aztec sweatbath, woman (midwife) bathing, *Florentine Codex*, Volume 3, Book 11, Folio 244 [fair use]

Figure 1.05  Image of sweatbath, man tending fire, *Codex Tudela*, 62r [fair use]

Figure 1.06  Image of Mixtec sweatbath, priest praying for birth, *Codex Zouche-Nuttall*, 16 [used with permission from FAMSI]
Figure 1.07 Image of Mixtec sweatbath, assassination, Codex Zouche-Nuttall, 81 [used with permission from FAMSI]

Figure 1.08 Image of Aztec sweatbath, man bathing inside, Codex Vaticanus 3773, 32 [used with permission from FAMSI]

Figure 1.09 Image of Aztec sweatbath, man bathing inside, Codex Borgia, 13 [used with permission from FAMSI]
Figure 1.10. Image of Aztec sweatbath, flowing water, *Codex Mendoza* [fair use]

Figure 1.11 Image of Aztec animated sweatbath, *Codex Aubin*, 45 [fair use]

Figure 1.12. Ancient Maya sweatbath, Piedras Negras P-7 [used with permission from FAMSI]
Figure 1.13. Plan of ancient Maya sweatbath, Piedras Negras P-7 [used with permission from Mark B. Child]

Figure 1.14. Section of ancient Maya sweatbath, Piedras Negras P-7 [used with permission from Mark B. Child]
Figure 1.15. Ancient Maya sweatbath, Yaxchilán SB 17

Figure 1.16. Plan and section of ancient Maya sweatbath, Yaxchilán SB 17 [fair use]
sweatbaths, it tightly seals walls, ceiling, and benches, creating a continuous smooth surface and traps the vapor as it collects on the surface and transforms back into water, falling like raindrops and sliding down the walls. When rocks are heated inside the sweatbath, it heats simultaneously, and when heated in an external oven, it warms once they are placed inside. Together the sweatbath’s small features and materiality create a dark, warm womblike ambiance essential to the sweatbath’s purification ritual.

An intense vaporous heat makes bathers sweat profusely, the sweatbath’s principle objective. Unlike dry heat, humid heat encases the skin, covering the pores and thus, preventing the body from easily sweating. The inability to sweat easily further heats the body up, forcing the heart to beat more vigorously and with more pressure. Deep blood circulation is stimulated throughout the body and organs, releasing toxins and impurities incapable of being released through regular exercise and sweating. Cornhusks or herbal branches, used to whip the skin, stimulate blood flow to the slapped areas and cause the pores to open more than usual, allowing the skin to sweat more profusely.16 Sweating cleanses the body and supplements the work done by other cleansing organs, such as the kidneys, lymphatic system, lungs, and gastrointestinal system.

Heat in the Sweatbath’s Name

Throughout Mesoamerica and the Maya area the sweatbath has many names dependent on language and regional dialect. The most common name, temazcalli or temazcal, is Náhuatl, an Aztec language, tema meaning “to bathe” and cali meaning “house,” and in Vocabulario en lengua castellana y mexicana y mexicana y castellana it is defined as a “little house like a stove, where they bathe and sweat.”17 In the colonial texts Durán, Sahagún, and Clavijero, refer to the sweatbath as temazcalli, and the incorporation of its Náhuatl name in Spanish contributed to its widespread use when speaking Spanish today.18 Durán describes the Aztec sweatbath as “baths called temazcal which means ‘bath house with fire.’ Made up of letel ‘fire,’ and mozcoa, “to bathe [and calli, ‘house’].”19 The sweatbath has many other names: nihi in the Mixtec community of Yucunuti, xica in the Veracruz and El Tajín area, tleh in Pocomchi spoken in Guatemala, chu in Kanjobalan also spoken in Guatemala, tuj in the high elevations of Guatemala and amongst the K’iche Maya, chu in the Mam speaking areas of Chiapas and the Guatemalan highlands, ika amongst the Tojolabal in Chiapas, and pus in the Chiapas Highlands amongst the Oxchuc Maya, Tzetzal and Tzotzil Maya, and the Yucatec Maya throughout the northern lowlands.20

Heat is embedded in the sweatbath’s names, definitions, and descriptions, similar to temazcalli. A Dictionary of Poqom in the Colonial Era describes tleh as “where they bathe and take hot baths.”21 The Maya hieroglyphic texts of Palenque’s Cross Group symbolic sweatbaths read pibnaahil, and in the Motul dictionary pib is “a very hot bath for women” naah is “house” and il implies a god is the owner, which is interpreted to mean “the deity’s very hot bath house for women.”22 In addition, Houston believes the suffix il, implies ownership and refers to the sweatbath being the birthplace of Palenque’s three creation deities.23 Groark notes other sources suggest pib is a subterranean oven used for steaming humans and food.24 The juxtaposition of steaming humans and food evokes the notion of transformation. Hot vapor causes soft cornmeal to solidify and take on the cornhusk’s impression and form, converting it into a delicious edible food. The sweatbath transforms weak, ill bodies into strong, fortified bodies when steamed, similar to the

16 Child, The archaeology of religious movements, 123.
18 Macina, El Temazcalli mexicano, 29-30; Clavijero, Historia Antigua de México, 349; Durán, Book of the Gods and Rites and the Ancient Calendar, 266; Sahagún, General History of the Things of New Spain, 191. When the Spanish arrived in the New World their sweatbath discovery was “one of the most notable peculiarities,” because in Spain frequent bathing was not a custom, and the Aztecs bathed with hot vapor.
19 Macina, El Temazcalli mexicano, 30-31; Durán, Book of the Gods and Rites and the Ancient Calendar, 269.
23 Ibid., 147.
24 Groark, “To Warm the Blood, to Warm the Flesh,” 11.
cornmeal, what the Maya believe humans are made from.

The Tzotzil Maya word for sweatbath is pus, an onomatopoetic word that imitates the hissing sound of water poured over fiery rocks. The root word of pus is found in other verbs associated with hissing, for example, pusel “it is steaming hot” puslil “it is hissing suddenly” and puste puste “it is hissing in several parts.”25 The terminology associated with the sweatbath, “oven,” “hot house,” “hot bath,” “steam,” “stove,” “fire,” and “hissing” contains notions of heat, where heat is commonly found, its movement and sound, and its affective qualities.

Female Sweatbath Deities

According to Aztec sources, the sweatbath is primarily associated with female deities because of its regenerative and womblike nature, although some male deities preside over the sweatbath.26 In the Codex Magliabechiano and Codex Tudela images of the Aztec sweatbath deity, Temazcalltoci or Toci, goddess of midwives and curers, hangs above the doorway (Figure 1.01, 1.05).27 The sweatbath deity’s name has many variations and associations: “Toci-Grandmother; Temazcalltoci-Grandmother of the Sweatbath; Teteo innan-Mother of the Gods; Tlalli yotli-Heart of the Earth; Yoalliciciltl-Night Curer, and Tlazolteotl-The Goddess of Filth.”28 The sweatbath itself is also called xochicalli, “the house of flowers,” flowers being a symbol of the uterus, reinforcing the sweatbath’s symbolism as a womb.29 According to Child, “it is the natural phenomenon of birth that symbolically transformed to the supernatural being of Mother Earth, so that she can give birth to both natural and supernatural beings. This is why the female sweatbath deity is considered a grandmother or mother of the gods, along with the mother of the human race.”30 The sweatbath becomes an extension of the original womb; each woman who gives birth replicates the gods’ original act of creation.

The sweatbath is strongly linked to the moon and moon goddess (to be discussed at length in Chapter 4 and 5), as it constantly transforms and is reborn after each 29-day cycle. In Central Mexican and Guatemalan Tz’utujil mythology the moon is conceived of as an aged woman, mother/grandmother of the sun and Venus, who will become the sweatbath’s protector and to whom people will make offerings.31 A similar version is recorded in the Maya town of Santiago Atitlan, Guatemala with the moon and her two children, sun and Venus, who kill her, “by stifling her to death inside a sweatbath, where she remains as a quisquil plant.”32 Quisquil is a type of squash shaped like a uterus, which sprouts vines resembling umbilical cords, bearing all future creation.33 In summary, “the woman killed in the steam bath is identified with the moon, and is typically spoken of as an aged woman, closely associated with purification, curing and birth-and paradoxically, linked to destruction, illness and death. She enters the sweatbath as a barren old woman, and through her death she is transformed into a progenitrix figure.”34 The moon’s death, transformation, and rebirth inside the sweatbath establishes its role as the “ancestral womb from which all humanity is born,” thus revealing death is not an end, but a transformation into new life, aged into new, dead to reborn.35

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26 Groark, “To Warm the Blood, to Warm the Flesh,” 20; Ichon, Alain, La religion de los Totonacos de la Sierra (Instituto Nacional Indigenista, México, 1973), 150-151. Tlapanec Aku is male and Totonac call it Taqgóoyut or Taqgosjútchisku. Ichon, 27 Tudela de la Orden, Jose, Codice Tudela (Madrid: Ediciones de Cultura hispanica, 1980), 622; Anders, and Jansen, García, Libro de la Vida, 213; Códice Magliabechiano, 76, 77; Child, The archaeology of religious movements, 96-97.
28 Child, The archaeology of religious movements, 96-97; Durán, Fray Diego de, The History of the Indies of New Spain, translated with notes by Doris Heyden and Fernando Horcasitas (New York: Orion Press, 1964), 335, 353; Sahagún, Fray Bernardino, Historia general de las cosas de Nueva España I (Barcelona: Linkgua S.L., 2008), 430; Groark, “To Warm the Blood, to Warm the Flesh,” 17; Child carefully explained that Toci/ Temazcalltoci should be the name used for the sweatbath goddess. Often Tlazolteotl is used, however Toci/ Temazcalltoci is the only name directly linked to the sweatbaths found in the ethnohistorical sources.
29 Reyes, Armando Sanchez, El agua en la cosmocvisión y terapéutica de los pueblos indígenas de México (México: Instituto Nacional Indigenista, 1999), 104-105; Sahagún, Historia general de las cosas de Nueva España I, 431, 435.
30 Child, The archaeology of religious movements, 91.
33 Ibid., 174, 178.
34 Groark, “To Warm the Blood, to Warm the Flesh,” 22.
35 Tarn, Nathaniel, and Martin Prechtel, “Comiendo la fruta”: metaforas sexuales e iniciaciones en Santiago Atitlan, “Mesoamerican
Male Sweatbath Deities

Masculine deities preside over the sweatbath as aged earth and fire deities who reside in the sweatbath. For the Tzeltal and Tzotzil Maya, both sexes are associated with the sweatbath; the female sweatbath deity “Holy Earth” is the female agricultural and lunar deity, and the male sweatbath deity is the agricultural deity, “Earth Lord” and owner of the sweatbath. For the Totonacs, the sweatbath represents the female earth and aged male fire deity, Tapsjoyut, a local version of Aztec god Huehuetotl, who resides in the sweatbath’s oven or “navel.” Among the Tlapanec, the sweatbath deity is a male aged earth deity called Aku. Tz’utujil Maya in Guatemala believe the sweatbath deity, Mam, is an aged male god of earth and fire who sleeps in his underground sweatbath. He is linked to the agricultural seasons, which coincide with the wet and dry season. During wet season, when the plants grow, Mam sleeps underground, and in dry season, when people plant and harvest crops, he protects rainwater in underground storages, such as caves. Mam, who embodies birth and death, akin to the moon, has his own unique cycles of transformation, death, and rebirth linked to the agricultural cycle. He has inactive and active stages understood through the binary notion of hot-cold (temperatures) and dry-wet (moisture) levels. When the sweatbath is activated it is hot and wet, a fiery and watery environment, and when it is dormant, it is cold and dry, and the cavity within the earth is hollow and the air, unnoticeably moves easily and rapidly.

Heat as Health

Each Maya community has its own variations and unique beliefs about health and illness, but in general illnesses are caused by supernatural, natural, and environmental causes. Illnesses caused by supernatural forces are sent from gods, ancestral gods, spirits, demons, a soul lost from fright, witchcraft, or evil eyes. Gods afflicting illness is evident in the Popol Vuh: Scab Stripper and Blood Gatherer “draw blood from people.” Demon of Pus and Demon of Jaundice give people, “a sudden fright when they have filth or grime in the doorway of the house, the patio of the house…and they are punctured till they crawl on the ground, and die.” In the Dresden Codex (p 16, 20) images of the moon goddess, Ix Chel, depicted her with vultures and pockmarks on her body indicating she is bringing illnesses. Natural causes of illness occur from accidents, deficiencies, excesses, and environmental factors including the sun, rain, cold, and wind. Good health results from being in equilibrium with nature, society, and gods, and it is, “a fluid state, resulting from a delicate, appropriate balance between a plurality of factors.” Illnesses can be avoided by praying, honoring the ancestors, keeping promises with the gods, not having evil thoughts or violating the moral code, and maintaining a good diet and hygiene.

Maya healers are composed of many specialists, secular and sacred professionals, including physicians, nurses, midwives, bite specialists, bone setters, surgeons, shamans, herbalists, and sorcerers, among others. Often times the healers are skilled in two or three specializations, such as midwives, who are frequently skilled in massages, bone setting, and herbal remedies. Medical action is dependent upon the

36 Groark, “To Warm the Blood, to Warm the Flesh,” 20; Child, The archaeology of religious movements, 98.
37 Groark, “To Warm the Blood, to Warm the Flesh,” 20.
38 Ibid., 25.
39 Ibid., 25.
41 Tedlock, Popol Vuh, 92.
43 Silver, “Enfermedad y curación en Zinacantán,” 164-166.
45 Orellana, Indian Medicine in Highland Guatemala, 52.
illness; herbal remedies and sweatbaths are a primary treatment, followed by consulting a shaman, who sensitively feels one’s pulse to determine an illness, or through divination, involving the interpretation of corn seed patterns when thrown.48 Seed divination is depicted in the Codex Magliabechiano (p 78), and interpretations are performed using the 260-day ritual calendar, a tradition still in existence today.49

Heat is fundamental to the Maya’s corporeal and spiritual understanding of well-being; it is essential to the soul, and the more heat one has, the more powerful and fortuitous they will be.50 It is commonly believed men are hotter than women, elderly are hotter than youth, and elites are hotter than non-elites. Warmth and cold are expressed as extremes. Warmth is expressed as health, power, fertility, vitality, and life; coldness is expressed as weak, barren, and death.51 Proportioned heat maintains one’s equilibrium, and the body becomes endangered when heat is lost and one becomes cold. Spiritual impurities cause the body and soul’s heat to grow cold, leading to illness, and thus applying heat removes corporeal and spiritual pollution and recalibrates the body’s equilibrium.

Maya notions of health and well-being are based on hot and cold. The body is in equilibrium when it maintains a thermal balance between hot and cold, and the body becomes ill when deficient in either. Fire resides in the heart, and the heart is the body’s primary source of heat, “the mother of the blood,” sustaining the blood’s warmth, thus the body’s warmth.52 Certain activities and foods are believed to interrupt equilibrium, while others work to restore and maintain equilibrium.53 Physical activity, ingesting “warm” foods and drinks, exposure to the sun’s heat, and frequently bathing in the sweatbath are ways to supplement the body’s heat, maintain its equilibrium, and keep the blood vigorously pumping.54 The sweatbath is restorative, using intense heat and warm herbs and teas to expel coldness out of the bathers bodies and restore one’s warmth and equilibrium. In essence “the heat of the sweatbath gives force, force is energy, and energy is life.”55 The Tzeltal and Tzotzil Maya in the Chiapas Highlands believe optimal health is achieved when no cold exists, and illness is caused when one comes in contact with cold water, earth, and wind, and when extreme fluctuations between hot and cold are experienced.56 Cold enters the body through the orifices, joints, pores, and soles of the feet, and while mere exposure does not always make one ill, it predisposes one to greater vulnerability.57

Many believe the Mesoamerican’s conceptions of health were imported by the Spanish, however, other scholars like López Austin, Orellana, and Groark believe the Maya and Mesoamerican people had their own unique conceptions of health and well-being.58 Groark states, “widespread occurrence of pre-Columbian practices designed to manipulate body temperature for therapeutic ends suggests that well-developed notions of warmth and cold were in place long before the arrival of the Spaniards.”59 The sweatbath’s use for 2400 years before the Spanish’s arrival is evidence illustrating the Mesoamerican communities’ understanding of health, defined in terms of hot and cold, was not imported from the Old World.

Heat is essential to the sweatbath’s rooting, an influential factor in the structure’s design and what contributes to its womblike quality. Embedded in language, heat is expressed in the sweatbath names and descriptions, and reinforced by notions of health, well-being, healing, and purification. The sweatbath

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49 Orellana, Indian Medicine in Highland Guatemala, 55-56; Lipp, “A Comparative Analysis of Southern Mexican and Guatemalan Shamans,” 111; Anders, Jansen, García, Libro de la Vida, 214; Códice Magliabechi, 78.
50 Orellana, Indian Medicine in Highland Guatemala, 28. Groark, “To Warm the Blood, to Warm the Flesh,” 44.
51 Groark, “To Warm the Blood, to Warm the Flesh,” 44, 45.
52 Ibid., 44.
54 Groark, “To Warm the Blood, to Warm the Flesh,” 45.
56 Groark, “To Warm the Blood, to Warm the Flesh,” 52.
57 Ibid., 47.
59 Groark, “To Warm the Blood, to Warm the Flesh,” 46. The oldest sweatbath dates to 900 BC in Cuello, Belize.
deities encompass many aspects associated with the sweatbath such as healing, childbirth, purification, and darkness, and its mythological stories highlight the importance of its womblike qualities as the place of creation and its transformative nature, associating it with deities, like the moon goddess, who are in perpetual transformation. Man’s transformations are reflected and understood through nature’s processes of birth, death, and rebirth.

1.2 The Entrance as a Threshold

Doorway

The doorway is one of the most identifiable sweatbath features - few other structures have such a low doorway. According to Clavijero, “the entrance like the mouth of an oven, is wide enough to allow a man to creep easily in,” and the illustration shows a man entering on hands and knees, and Durán describes it as, “very low and narrow…people enter one by one and on all fours.” Evident in photographs and codex images, the sweatbaths consistently have low, narrow doorways, usually shorter than the average adult and barely wide enough for an adult body to pass through. Shrines have been confused with sweatbaths due to the short doorway, however, shrines are usually too small to accommodate a human body. At Edzna, Chichen Itza, and in all codex images, the extremely small doorway does not permit one to enter standing up or crouched over, but requires one to enter on hands and knees or on one’s stomach (Figure 1.17, 1.18). At Chichen Itza’s cenote sweatbath, the doorway is physically centered in the middle of the façade, and it is not known how they entered, although perhaps the bather was lifted up about a meter high or used a ladder.

Lintels are frequently present in the sweatbath doorways (Figure 1.15, 1.16). Ancient sweatbaths had large lintels spanning across the doorway, with some still in situ and many missing. The lintels are smooth, most likely covered in plaster, and most do not have elaborate carvings on them, like other doorway lintels (Figure 1.19). However, Yaxchilán’s SB 10’s three lintels have rows of hieroglyphic texts carved on the underside, and at Palenque’s Cross Group Temples the front of the symbolic sweatbaths are sculpted in relief (Figure 1.20). To read a lintel’s underside text and image, upon entering, the body must rotate ninety degrees, parallel with the opening, changing the body’s direction and posture.

In the codices, there are two types of doorways: a square doorway with a lintel spanning across it and a rounded doorway without a lintel. Interestingly, in the Codex Tudela (p 62r), Codex Zouche-Nuttall (p 16, 81), the Codex Vaticanus 3773, (p 32), and Codex Borgia (p 13) the doorways are painted red or orangish red, similar to the color of the fire burning in the oven, and contrast with the white façade (Figure 1.05, 1.06, 1.07, 1.08, 1.09). Contemporary sweatbaths have various types of doorways: rectilinear doorways with a lintel spanning the opening, rounded arches, and a mixture of a rounded arch and an external mantle above for placing offerings (Figure 1.21, 1.22, 1.23, 1.24, 1.25).

Pre-Sweatbath Rituals

Sweatbath rituals are illustrated in the codices and narrated in the colonial texts, supplementing the knowledge about sweatbath rituals. Codex images, such as from the Codex Magliabechiano, provide essential details about the bathers, clothing, gestures, and preparatory rituals (Figure 1.01). In seven of eleven codex images the bathers are naked, a horrifying act to the Spaniards. According to Clavijero, “he who is about to bath commonly enters naked,” and Durán writes, “mingled and naked as they are they cannot fail to be great affronts and offense to our Lord…I am dealing with evil that can come of [men and women] being mixed up in this way.”

Durán describes his prohibition of men and women bathing together writing, “Then [the people] played a doll trick on me: in order not to break their heathen law and

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60 Clavijero, _The History of Mexico_, 429; Durán, _Book of the Gods and Rites and the Ancient Calendar_, 270.
61 In many of the ancient sweatbaths, like Yaxchilán and Piedras Negras, the drain gives the doorway extra height, facilitating entrance.
63 Codex Zouche-Nuttall. (Mexico City: Fondo de Cultura Economica 1992), 16 81; Códice Vaticano B 3773, 32; Códice Borgia. (Mexico City: Fondo de Cultura Economica, 1993), 13; Tudela de la Orden, _Codice Tudela_, 62r.
64 Arched doorways do not have a lintel in place. The arched doorways instead often have a mantle above the doorway, but it is not integral to the structure and does not serve a structural purpose.
65 _Códice Magliabechi_, 77.
66 Clavijero, _The History of Mexico_, 430; Durán, _Book of the Gods and Rites and the Ancient Calendar_, 272.
tradition, when the women went to bathe, they carried with them one or two of their male children, and the men a little girl or two." Today natives frequently bath with the opposite sex, for example, when sick, the person administering the sweatbath must be the opposite sex, and there must be a balanced number of men to women, however the codex images do not illustrate mixed bathing in every image. Instead the codex images show three men bathing together, a pair of men, a single woman, and a single man entering or inside the sweatbath.

In the Codex Zouche-Nuttall (p 16) two priests are seated in front of a sweatbath with elaborate clothing and headdresses on, their bodies painted black, offerings placed between them, and appear to be making a gesture of prayer or offering (Figure 1.06). Below is a mother who recently gave birth to a girl, indicated by the umbilical cord and pool of blood. In one image from the Codex Nuttall (p 81) and the Codex Magliabechiano the bathers’ bodies are covered in black paint, which the Codex Magliabechiano states was in veneration of Tezcatlipoca, an Aztec god (Figure 1.01, 1.07). Prayers and offerings are made to Temazcalteci, as previously mentioned, whose portrait is hung above the doorway in two codex images, and today large figurines, vases, candles, flowers, crosses, and other sacred objects are placed as offerings at or above the doorways seen in photographs of contemporary sweatbaths.

The Doorway as a Threshold

Entering the sweatbath was a pivotal moment in the ritual narrative. The doorway is a threshold, differentiating inside from outside, public from private, and sacred and profane. It delineates preparations from bathing, assistants from participants, cold from hot, and filthy from purified. Symbolically, it highlights the transitional moment from life to death, a movement from light into darkness, representing the return to womb experience. Throughout the world return to womb rituals occur as a preparation for rebirth, when an ideal state of being, pureness, or newness is required. Cross culturally it is performed by figuratively abolishing the past, being digested in a monster’s belly, transported to another world, returning to a point of origin, or metamorphosing into another state of being. When the sweatbath door finally shuts, darkness fills the interior space, and akin to the primordial sea, all things become indistinguishable. Entrance into the sweatbath marks the beginning of the journey of death.

To Enter is to Die

Evidence in Maya hieroglyphs and language suggests the act of entering was a form of death, an exit from one world and entering into another. The verb tense och in Tzeltalan Maya and Cholan and ok in Yucatec Maya means “to enter,” and all share the same glyph. Analysis of glyphic combinations with och and ok, suggest in certain situations “entering” was a change in state, being, or an implied death. Och combined with bhí forms och bhí meaning, “to go on a road, to enter a road,” a metaphor for death. “Death” and “road entering” are frequently associated with the underworld, a dangerous and liminal place full of obstacles. The contemporary communities of the Tzotzil and Tzeltal Maya use the term chamel “ill-
Figure 1.17. Ancient Maya sweatbath doorway, Edzna

Figure 1.18. Ancient Maya sweatbath doorway, Chichen Itza’s Sacrificial Cenote

Figure 1.19. Ancient sweat-bath doorway smooth lintel, Yaxchilán SB 17
Figure 1.20. Ancient sweat-bath doorway carved lintel, Yaxchilán SB 10

Figure 1.21. Contemporary sweatbath

Figure 1.22. Contemporary sweatbath
Figure 1.23. Contemporary sweatbath, Milpa Alta, México
[used with permission from University of Pennsylvania Museum]

Figure 1.24. Contemporary sweatbath, Tepotzlán, México
[used with permission from University of Pennsylvania Museum]

Figure 1.25. Contemporary sweatbath, San Francisco, México
[used with permission from University of Pennsylvania Museum]
Figure 1.26. Plan and section of contemporary sweatbath, San Francisco, Tepotzlán, Milpa Alta [fair use]

Figure 1.27. Ancient sweat-bath interior, Piedras Negras P-7 [used with permission from FAMSI]

Figure 1.28. Chicanna mouth doorway
ness,” derived from the root cham meaning “to die,” thus being sick is as if, “one has entered into, the (not irreversible) process toward death...Death is the ultimate cold state, and the sick (person) has entered the cold path to death.”76 The underworld was a cold, dark cavernous place, and thus the opposing condition to the warm healthy soul. Och combined with ha’ “water” forms och ha’ “to go in the water,” which Stuart believes means death because water is a portal between worlds.77 Och combined with k’in means “west,” forming och-k’in, and the Yucatec cognate ok-k’in, means “sunset” or “sun-entering.”78 Because the sun sets in the western sky, west is associated with death and darkness, and the sun is reborn in the east every morning, beginning the cycle all over again.

Och glyphs are found on hieroglyphic inscriptions classified as “dedicatory texts” which record or commemorate ownership or manufacture of venerated objects.79 “Fire-entering” ceremonies are performed in moments of initiation, renewal, and renovation, bringing to life sacred objects and often bestowing them with a soul.80 The och glyphs indicate the object’s changed state of being, the death of one’s prior state, to acquire the new state.

Renewal is fundamental to the Maya culture and their conception of life. In the Popol Vuh renewal is expressed through the cyclical planting and harvesting of corn, the Maya dietary staple. Before the hero twins leave their grandmother, Xmucane, and depart for Xibalba, they plant corn seeds in the center of her house, and tell her, dead corn plants mean they have died, while sprouted corn plants mean they are alive. Season after season, the corn plants grow and she rejoices, and when they die she weeps, and again they grow back.81

Doorway as Mouth, the Animated Façade

The Maya believed certain inanimate objects surrounding them were alive. Natural features, plants, animals, and crops, such as the corn, had personalities and influenced their world. Objects, including buildings, were personified, sometimes human and sometimes zoomorphic, and human body parts, functions, and spiritual qualities were bestowed upon them, and baptisms and “life-giving” ceremonies were performed.82 Houston explains, “Just as people consume food, so do the heat and smoke of incense burners activate and vitalize architecture.”83 The human body was a main point of reference for the Maya:

It (the body) possesses attributes that form a natural, forceful, and readily structured model for categorizing other aspects of the world...Indeed, the body as an experiential filter unavoidably imprints its properties on the world around it. At once physical entity and cognized image, the body endlessly generates metaphors for ordering thoughts and actions about everything from society to morality, buildings to geography, often linking body space with cosmic space and social space.84

Architectural features assumed the character or function of certain body parts, symbolically infusing them with spiritual and ritual significance.

Maya architects frequently constructed buildings with zoomorphic facades and elaborate doorways as if they were mouths, as mentioned previously. One of the most famous mouth doorways is at Chicanna, an ancient Maya site in the state of Campeche, where eyes and nose are positioned above the teeth-lined opening and a bottom jaw opens away from the façade (Figure 1.28). Surrounding the mouth are layers of stones shaped into curls, the Maya symbol for breath, giving it the human capacity to breathe.

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76 Groark, “To Warm the Blood, to Warm the Flesh,” 46-47. Tzotzil and Tzetzil Maya use jchamel, to indicate someone is sick. It is derived from the word chamel which means “illness,” the root cham meaning “to die” thus to be sick is also to be dying.
78 Ibid., 389.
79 Ibid., 389.
80 Ibid., 385-389. Fire, smoke, rattles-fire, and flame glyphs are included in the dedicatory texts and combined with the glyph for OCH. They are found, in particular, around the artifact rich region surrounding Yaxchilán, Piedras Negras, and Palenque.
81 Tedlock, Popol Vuh, 139. The texts also states: “she burned copal before the ears of green corn as a memorial to them. There was happiness in her grandmother’s heart the second time the corn plants sprouted.”
82 Houston, Stuart, and Taube, The Memory of Bones, 36; Houston, Stephen, Function and Meaning in Classic Maya Architecture. (Washington, D.C. Dumbarton Oaks Research Library and Collection, 1998), 521. Houston explains that doorways are depicted as mouths, posts are feet, ridgepoles are heads, crossbeams are spines, corners are noses, fingers are related to tree roots, and a pot’s lid is its head.
83 Houston, Function and Meaning in Classic Maya Architecture, 521.
84 Houston, Stuart, and Taube, The Memory of Bones, 9.
The body is essential to ritual, as “ritual weaves speech, gesture, rhythm, and structured ceremony into a form of worship.” The body’s ritual movement, grounded with profound meaning, conjures up deep emotional responses, awakening one’s spirituality, and uniting the body and soul. All who have participated in the sweatbath ritual repeat similar gestures and postures, perpetuating and vivifying the ritual. The body is “the deposit, the sediment, of generations of traditions,” and like a palimpsest, it transmits events and drawings where the presence of human features such as a face, eyes, eyelashes, mouth, and hair are depicted on the façades of ancient sweatbaths, those in the codex images, and contemporary sweatbaths. Piedras Negras’ SB P-7 resembles the three Aztec sweatbath images in the Florentine Codex; the dark doorway is the mouth, the vents and niches are the eyes, and in the Florentine Codex, the smoke exiting the vents appears like eyelashes (Figure 1.02, 1.03, 1.04, 1.11, 1.12).85 The doorway appears like an open mouth ready for consumption. Contemporary sweatbaths in Tepoztlán and San Francisco, Mexico depict a face-like appearance on the façade: vents appear like eyes, the doorway is a mouth or nose-mouth combination, and the Tepoztlán sweatbath has undulating roof tiles appearing like curly hair (Figure 1.24).86 In addition, “warming ceremonies” or “initiation ceremonies” are performed for a sweatbath after construction and before use, discussed in Chapter 5, because it is considered a living entity with potential to be harmful or helpful.87 At times the sweatbath is dressed up, decorated in candles and flowers, offered food and drinks, danced for, given a name, godparents, bestowed a soul, brought to life, and sometimes later killed.88

The Body’s Posture

The sweatbath’s architectural features, in particular the doorway, prompt the body’s movements and postures, reiterating the ritual’s underlying significance through the body. The image of Temazcaltoci and offerings above the sweatbath lintel and doorway serve as a reminder to bathers to say prayers and make offerings before entering. Its presence reminds one to move in certain ways, make certain gestures, and assume special postures; ritual, “suspends the natural attitude of the human body—suspends, that is, its natural postures, bearing, gestures and movements—in order to facilitate the emergence of a deeper, and more spiritual, modality of awareness.”86 Entering the sweatbath requires one to lose the upright position, and crawl like an infant “on all fours,” on hands and knees in a tucked position, and in some instances, enter on the stomach, reinforcing the return to womb experience.86 While inside the sweatbath, the body conforms physically and sensorially to the dark compact interior, and the bathers either lie down as if dead or in a tucked position like a fetus in the womb. The Maya dead were buried lying on their back, usually with the limbs extended, and the Codex Vaticanus 3773 (p 32) and Codex Borgia (p 13) show the bather lying on his back, in a tucked position with his legs close to his torso (Figure 1.08, 1.09).81 Exiting is a symbolic emergence from the womb into the world, from darkness into light, expressed through the body emerging head first and water flowing out of the tight aperture.

Evidence the Maya conceived of the sweatbath as an animated entity is visible in photographs and drawings where the presence of human features such as a face, eyes, eyelashes, mouth, and hair are depicted on the façades of ancient sweatbaths, those in the codex images, and contemporary sweatbaths. Piedras Negras’ SB P-7 resembles the three Aztec sweatbath images in the Florentine Codex; the dark doorway is the mouth, the vents and niches are the eyes, and in the Florentine Codex, the smoke exiting the vents appears like eyelashes (Figure 1.02, 1.03, 1.04, 1.11, 1.12).85 The doorway appears like an open mouth ready for consumption. Contemporary sweatbaths in Tepoztlán and San Francisco, Mexico depict a face-like appearance on the façade: vents appear like eyes, the doorway is a mouth or nose-mouth combination, and the Tepoztlán sweatbath has undulating roof tiles appearing like curly hair (Figure 1.24).86 In addition, “warming ceremonies” or “initiation ceremonies” are performed for a sweatbath after construction and before use, discussed in Chapter 5, because it is considered a living entity with potential to be harmful or helpful.87 At times the sweatbath is dressed up, decorated in candles and flowers, offered food and drinks, danced for, given a name, godparents, bestowed a soul, brought to life, and sometimes later killed.88

87 Reyes, El agua en la cosmovisión y terapéutica de los pueblos indígenas de México, 108-109. In some of the contemporary sweatbaths there are signs over the sweatbath with initiation dates.
89 Durán, Book of the Gods and Rites and the Ancient Calendar, 270.
90 Códice Borgia, 13, Códice Vaticano B 3773, 32.
91 Grainger, Roger, The Language of the Rite (Christian Classics. Allen, Texas, 1984), 31. The continuation of the quote is: “which is expressive of man’s way of being in the world—that is not as an idea, but as a person...it unites his physical, mental, and emotional being in a single response to the unseen...within the specific conditions of humanness.” This expresses the notion that through the body’s presence and movement in ritual, a deep spiritual awareness is aroused, solidifying the experience from within
them from generation to generation, uniting those who have performed a similar ritual.93

Rooted in creation is death, a fundamental component to nature’s life cycles and the sweatbath ritual. In the Maya culture, death was not an end but a change of being, and in certain circumstances, entering equaled death; entrance into a new world is an exit from a prior world and death of the previous existence was required to fully engage in the new. Passing through the sweatbath’s doorway was symbolic of death, the sacrifice of the old to acquire the new, and also rebirth as one emerged out of the sweatbath. The sweatbath and body are intertwined: the sweatbath has human features, even a soul, and the structure, relating to the human body through size and scale, informs its movements and underlying symbolic meaning. The architectural features and body’s postures are meaningful, tethering together the physical and symbolic, and body to building.

1.3 The Sweatbath Interior for Sweating

Firebox and benches

The sweatbath’s compact interior is comprised of the firebox, benches, and drain. Archaeological drawings of the ancient sweatbaths provide details about the interior, and the collapsed roofs facilitate seeing. The predominant sweatbath interior varies in size from six to fifteen square meters, is rectangular or square in form, symmetrical with stone benches straddling the drain and occupying the majority of the interior space, and a firebox centered on the entrance and towards the back wall. The symmetrical layout allows the vapors to disperse and fill the sweatbath chamber more evenly than the asymmetrical layout seen in the codices and contemporary sweatbaths.

Fireboxes vary in elevation and enclosure. Some sweatbaths, like Yaxchilán SB 17, have a semi-enclosed firebox with a small lintel straddling two vertical rocks the width of the drain (Figure 1.29, 1.30, 1.31). It is located at the same elevation as the bench and about a foot above the drain. Perhaps the firebox was surrounded on three sides, however only the front lintel and the firebox’s outline remains. Other sweatbaths, like the eight at Piedras Negras, are drawn completely enclosed, except for the front side, centered on the doorway, towards the back wall or abutting it, and perched above the drain at the same level as the benches (Figure 1.13, 1.14).94 These fireboxes appear like a miniature sweatbath inside the larger sweatbath, and one can imagine at various scales, vapors bursting from the firebox and sweatbath doorway, replicating the life-sustaining clouds the Maya believe emerge from caves. At Edzna the firebox is recessed into the earth and no evidence indicates it was enclosed, like those at Piedras Negras (Figure 1.32).

Codex sweatbath images and contemporary sweatbaths both have ovens attached to the sweatbath chamber, and this external similarity suggests perhaps the codex sweatbaths’ interiors resemble contemporary sweatbath plans. Contemporary sweatbaths have many configurations, always an opening on front, and if the oven is attached, there is an opening between the oven and the sweatbath chamber, but not all ovens have an external door. Without the external oven doorway, one must enter through the main entrance to place the stones and wood in the oven to heat them. According to Clavijero, “the part which unites the furnace to the bath, is shut with a dry stone of tetzontli, or some other stone porous like it,” and the sweatbath plan of Milpa Alta, Mexico indicates rocks in this opening (Figure 1.26).95 In instances when the oven is not attached to the sweatbath, the rocks are heated up in an external oven, and when hot they are brought into the sweatbath and placed in the firebox, usually centrally located in the chamber.

Ancient sweatbaths typically have benches inside, separated by the drain and firebox. Elevated above the drains, the benches extend from front to back allowing the bathers to lie down and be close to the warm vapors. Benches in the sweatbath sample group commonly occupy more than 60% of the interior space, and can occupy up to 90% of the interior space as seen in Yaxchilán’s SB 17, significantly more than other structures with benches, which average around twenty to thirty percent.96 Benches are not present in the symbolic sweatbaths at Palenque or Comalcalco or the small rounded sweatbath at Ek Balam (Figure 1.33). Ceren’s rural sweatbath has benches located around the structure’s external perimeter and on the interior, and at Quiriguá, the firebox is uniquely located inside and underneath the bench.97 In large mul-

93 Levin, The Body’s Recollection of Being, 173, 199.
95 Clavijero, The History of Mexico, 429; Cresson, “Maya and Mexican Sweat Houses,” 1938: 91, 92, 94, and 95.
96 García Moll, Arquitectura de Yaxchilán, 323-324. He includes part of the firebox in the bench calculation, so his number is higher actuality. He has the benches occupying 93% of the interior space.
97 Sheets, Payton, The Ceren Site: An Ancient Village Buried by Volcanic Ash in Central America, 2nd Edition (Belmont: Wadsworth Pub-
tiple-room sweatbaths, benches are present in the additional rooms and were most likely used for resting before and after bathing. Most contemporary sweatbaths do not have benches inside, and instead bathers lie down or sit on packed earth, straw mats, wooden planks, stones, brick, or concrete.

Roof and Surface

Although many roofs have collapsed, making it difficult to determine the exact ceiling and roof height, typically the sweatbath ceiling heights are low and do not allow one to easily stand up inside. Ancient Maya sweatbaths have higher ceilings, but significantly angle inward reducing habitable space. At Yaxchilán SB 17 the roof collapsed, but one corner is semi-intact with the wall leaning inward around a meter high, and the archaeological drawings indicate the arched ceiling height reached around two meters (Figure 1.15, 1.16).98 Sweatbath drawings at Piedras Negras and Chichen Itza indicate the sweatbath chamber has the typical Maya arch and capstone, interior walls are upright for the first meter, and angle inward around two meters, averaging a ceiling height of three meters (Figure 1.14).99 The colonial descriptions of the sweatbaths and the codex images indicate the sweatbaths were no more than a meter high, perhaps two, and shorter than the average adult. Architectural drawings of contemporary sweatbaths’ average ceiling height is around a meter, thus the ancient ceremonial sweatbaths had higher ceilings than domestic sweatbaths.100

Shown on many sweatbath interiors are plaster remnants, an interior skin that would have significantly eliminated heat from escaping the structure, help shed water, and when moistened by the vapors, become a very smooth and slick surface.101 Ruppert reports Chichen Itza’s SB 3E3 has plaster and paint remnants found in the gallery, the exterior room, and the benches are painted black and “the north, east, and west walls had been painted black to a height of 45 centimeters above the early bench. Above this is a 10 centimeter red band followed by black. On other parts of the walls were traces of red and green as if a pattern of a fresco. Color is also noted on some fallen stone walls…One capstone from the center is painted blue; some of the others are painted black.”102 Ruppert’s finding suggests possibly the sweatbath’s interior, or part of it, was painted in various colors, and deserves future investigation.

During excavation a variety of items were found indicating specific activities occurred in and around the sweatbath. Archaeological excavations at Piedras Negras’ eight sweatbaths encountered the ceremonial sweatbaths, “virtually swept clean of artifacts,” but artifacts were found in the residential sweatbaths.103 Artifacts found include: pumice stone, probably used for scrubbing the skin, long prismatic blades, obsidian razors, probably used for grinding and scraping, and shaving the exfoliated skin from the body, a granite metate, a stone slab used for grinding and pulverizing herbs, and a ceramic jar that perhaps held restorative remedies.104 Child believes the artifacts found in the residential sweatbaths indicate they were generally used for healing, birthing, and medicinal use.

Purification and the Womblike Experience

The sweatbath’s main goal is to make the body sweat and it is designed to efficiently contain the hot vapors. Copal incense, a tree resin, is burned to purify the sweatbath’s air and evoke the gods’ presence because the incense’s smell is considered food of the gods and used as an offering.105 Its use is recorded in the Codex Magliabechiano text accompanying the sweatbath image, “when a sick person went to the bath they offered incense, which they called copal.”106 Once the sweatbath is ready, the bathers are purified in copal incense, and enter inside either sitting or lying down. Clavijero describes what occurs inside the sweatbath:

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98 Garcia Moll, La arquitectura de Yaxchilán, 128. The rocks on the outside are not falling in as it appears on the inside, and therefore it seems that the inside was constructed to angle inwards.
99 Ruppert, Chichen Itza, 81; Child, The archaeology of religious movements, 327-243.
100 Cresson, “Maya and Mexican Sweat Houses,” 91, 92, 94, 95.
101 Ruppert, Chichen Itza, 56, 82; Child, The archaeology of religious movements, 215, 229.
102 Ruppert, Chichen Itza, 82.
103 Child, The archaeology of religious movements, 392.
104 Child, The archaeology of religious movements, 393-394. Ruppert, Chichen Itza, 82. Ruppert gives details about a skull, ribs, and a jaw bone found inside a cache and above the doorway.
105 Códice Magliabechi, 76.
106 Ibid. 76.
Figure 1.29. Ancient sweat-bath interior, bird’s eye view of firebox, benches, drain, Piedras Negras O-4
[used with permission from FAMSI]

Figure 1.30. Ancient sweat-bath interior, drain floor, Piedras Negras O-4
[used with permission from FAMSI]

Figure 1.31. Ancient sweat-bath interior, firebox, benches, and drain, Yaxchilán SB 17
Figure 1.32. Ancient sweat-bath firebox, Edzná

Figure 1.33. Ancient sweat-bath interior, Ek Balam
When any person goes to bathe, he first lays a mat within the Temazcalli, a pitcher of water, and a bunch of herbs, or leaves of maize... As soon as he enters, he shuts the entrance close, but leaves the air-hole at top for a little time open to let out any smoke which may have been introduced through the chunks of the stone; when it is all out he likewise stops up the air-hole. He then throws water upon the hot stones, from which immediately arises a thick steam to the top of the Temazcalli. While the sick person lies upon the mat, the domestic drives the vapor downwards, and gently beats the sick person, particularly on the ailing part with the bunch of herbs, which are dipped for a little while in the pitcher of water, which has then become a little warm. The sick person falls immediately into a soft and copious sweat, which is increased or diminished at pleasure, according as the case requires... When a very copious sweat is desired, the sick person is raised up and held in the vapor; he sweats more the nearer he is to it.107

When the doorway is sealed usually with a mat, animal skin, blanket, wood, or stone, and the vents are stuffed with plants, complete darkness overcomes the sweatbath. Herbal infused water is poured over the fiery rocks, emitting blasts of vapor, which fill up the inside. As they subside, additional water is poured over the rocks, and gradually more fiery rocks are added to the sweatbath, incrementally increasing the heat and vapor density. Herbal and vegetative branches are soaked in water and used for slapping the skin to increase sweating and for their aromatic medicinal qualities when placed over the steam and when touched to the walls.108 Durán explains the role of the fanning and fanner, “the people were convinced that with fanning they blew away illnesses, strengthened the flesh, and gave health and strength to the sick. The [fanners] were so highly honored, esteemed, and revered that they were held as saints and whenever it was necessary to call them they were showered with gifts: plentiful food, pulque, and ears of corn, depending upon the quality of each [fanner].”109 The person directing the bathing determines what herbs to use and what parts of the body to slap to best aid in the treatment.110 Slapping the skin with herbal branches has certain associations with sweeping rituals, which use “brooms” or other objects to attract and remove bad air, and the herbal branches resemble a broom, symbolic of the sweeping.111

Bathing lasts from a quarter hour to several hours, first heating the skin, then muscles, and lastly bones. Durán writes that afterwards the participants “wash themselves with cold water outside the bathhouse so that the fiery bath will not remain in their bones. It frightens one to see someone with an exposed body, having sweated for one hour, abandon the bathhouse, be bathed, receive the splash of ten or twelve pitchers of water, without fear or any harm... If a Spaniard were to go through this, he would go into shock or become paralyzed.”112 Bathing in cold water, whether immersed or poured over the individual, cools the body and shuts the pores, terminating the sweating and sealing off the body from “cold” air entering. In other instances, bathers are wrapped in blankets and rest until their bodies naturally cool and finish sweating.

Durán describes the sweatbath’s intense heat as “almost unbearable,” and “commonly used by the Indians, both healthy and ill.”113 It was used to cure a range of illnesses, diseases, and injuries, and takes advantage of the body’s natural ability to sweat out impurities when exposed to heat, which is detailed in the following four sections: curing the body, calming and cleansing, natural aid in childbirth, and ritual purification and purgations.

Sweat: Curing the Body

Curing illnesses and disease is a main objective of the sweatbath ritual, and is documented exten-
sively in the ethnohistoric accounts. As previously explained, illness is associated with sin and cold entering the body, causing disequilibrium, therefore, physically heating the body makes it sweat, expels harmful bacteria, toxins, and impurities, and restores one’s equilibrium. Sahagún describes the benefits below:

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 has fallen from a roof terrace...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 are there cleansed.114

The sweatbath aids in curing short-term illnesses or injuries such as insect or animal bites, broken bones, fevers, and to help postnatal women avoid infections such as puerperal fever.115 Clavijero wrote, “The Indian women use it commonly after child-birth, and also those persons who have been stung or wounded by an poisonous animal. It is undoubtedly, a powerful remedy for all those who have occasion to carry off gross humour.”116 It treats health problems such as gastrointestinal, gynecological, arthritic, respiratory, and dermatological illnesses, and a range of viruses and diseases such as typhoid, chickenpox, malaria, syphilis, and leprosy.

Herbal and animal remedies were used in conjunction with the sweatbath. At Piedras Negras soil samples were taken from three sweatbaths, two ceremonial sweatbaths and one residential sweatbath, at the inner and outer edges of the sweatbath, and phosphate was present, “an indicator of organic remains...most likely that the use of medicinal herbs were used in the sweatbath itself.”117 In the diverse Chiapas region over sixty different herbs are used to make around one hundred decoctions, bathing water, and poultices, administered before, during, and after the sweatbath ritual.118 Teas are the most common treatment, poultices are used for broken bones and bodily injuries or wounds, and nasal drops are used for respiratory problems.119 Some treatments require a single herb, however other treatments use multi-herbal mixtures for the cumulative effect. Although animal mixtures are not as common, they are usually used alone to produce the desired antidote.120 Animal intestines, bones, teeth, genitalia, tails, and shells are used to treat intestinal problems, impotency, and to speed up childbirth.121

Another mode of expelling impurities and maladies from the body is through bloodletting, combined with slapping the skin with branches. Bloodletting is used for severe headaches, rheumatism, muscles aches, and “aggressive madness.”122 Shards of glass, rodent incisors, and serpent fangs are used to puncture the skin in certain places and in specified quantities to rid the body of pathogenic blood.123 Supposedly, “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.”124 When used for curative purposes, additional medicinal treatments, like herbal and animal remedies, were used to enhance the sweatbath’s effectiveness.

Sweat: Calming and Cleansing the Body

Frequent bathing in the sweatbath, once or twice a week, is still a primary way the Maya maintain health. It is hygienic and a preventative measure due to the frequent purging of bodily toxins, and ther-

114 Sahagún, General History of the Things of New Spain, 190.
115 Macina, El Temazcalli mexicano, 50. Plueperal fever is a bacteria infection that can be contracted by the mother during a miscarriage or childbirth and if not treated is fatal.
116 Groark, “To Warm the Blood, to Warm the Flesh,” 60-66; Franch, and Ruiz, Ponce de León, El temazcal en Mesoamérica, 122; Clavijero, The History of Mexico, 430.
118 Groark, “To Warm the Blood, to Warm the Flesh,” 68; Morales, El temazcal, 78. Decoction is a liquid form of an herb, derived from mashing and boiling it, extracting the chemical residue or oils. Herbs used are: black foot fern, mother of water tree, peppercorn, cloves, oak tree, sweetgum tree, oak bark, corn, juniper needles, sambucus, verbena, tobacco, lime, hibiscus, onion, mint, zacate, chamomile, eucalyptus, mulberry, avocado, basil, chile, epazote, and rosemary. Animal remedies include the following animals: snake, opossum, gopher, coatimundi, deer, and mouse.
119 Groark, “To Warm the Blood, to Warm the Flesh,” 68.
120 Groark, “To Warm the Blood, to Warm the Flesh,” 69.
121 Groark, “To Warm the Blood, to Warm the Flesh,” 70. Whether or not it actually works, the coati’s penis is used as a remedy for male impotence because its desired fine boned penis remains erect for long durations.
122 Groark, “To Warm the Blood, to Warm the Flesh,” 57.
123 Ibid., 57.
124 Ibid., 57.
apeutic as it relaxes the body, muscles, and mind. Sahagún accounts the sweatbath was where “the sick there restore their bodies, their nerves” and received therapeutic benefits, “his nerves are shattered, he constantly goes paralyzed - there they make him hot. When he has endured the sweatbath, the body, the nerves, are somewhat relaxed.” The sweatbath’s heat relaxes the body and relieves stress. It is a place for convalescing, to aid in the recovery and rehabilitation after suffering from illness and disease.

The Spanish were not accustomed to bathing frequently, and the sweatbath’s role in daily life was shocking and sinful to them. As previously mentioned, the Spanish were appalled with mixed sex bathing and believed “it caused great offense to the gods,” it was “evil,” and the “ugly and torpid customs of males and females bathing together.” They believed deviant sexual behavior, such as same sex intercourse and orgies, occurred inside, and while they were not entirely incorrect, the sweatbath was a place of sexual activity in many communities, they failed to understand mixed bathing was a way Maya sought balance. Mixed sex bathing “was a fundamental aspect of bathing etiquette among the Aztecs, and represented an ideal of gender complementarity,” and “bathers always entered the sweatbath in mixed groups in order to avoid supernatural punishment.”

Still today men and women within the same family and sometimes neighbors bathe together. The family bath is described as “physically intimate” and “an event with a distinctly social tone.” Usually around sunset the family members gather, enter the sweatbath naked, lay down on the floor with their feet towards the fire, and “sleep” in the “suffocating” dry heat, with inside temperatures reaching between 170° and 195° F. After a short period of time in the dry heat, water is poured over the rocks, and with a frightening hiss, an immense cloud of scalding steam bellows out of the small oven, engulfing everyone in the hot, wet vapors. The bathers take a ‘broom’ (mes) made of bunched grass blades or a leafy tree branch, dip it in a pot of hot water, and begin to beat their entire body with it…The atmosphere is jovial, and ribald jokes are often exchanged among the men. In some areas, bathing days are designated, such as Saturdays or Sundays, and always before a special event or festival. The frequent use addresses an individual’s health performing like a “prophylactic measure by rewarming the blood and preventing pathogenic ‘cold’ from gaining a foothold in the body.” In an equally important way, the sweatbath ritual strengthens and fortifies social bonds amongst intimate family members and friends. To the Maya, social and collective life is more important than individual life, and the sweatbath cures the individual for the community’s welfare and safety and fortifies social bonds.

Heat: A Natural Aid in Childbirth

Childbirth and female health is one of the sweatbath’s most profound and enduring roles. Its role within the feminine domain is reinforced through its symbolism as a womb and the female deities of fertility, childbirth, and pregnancy. Women’s illnesses are conceived of as a lack of warmth, and put women in danger of serious ‘cold’ illnesses. Such illnesses and conditions include painful menstruation, absent or excessive menstruation, infertility, lack of breast milk, and difficulty during delivery. Women’s heat is linked to the moon because “the moon passes through regular, monthly phases during which her brightness (heat) waxes and wanes. These lunar cycles are seen as analogous to a female’s physiological cycles, which similarly distinguish women from men.” The sweatbath helps women maintain a healthy

125 Sahagún, General History of the Things of New Spain, 190.
126 Durán, Book of the Gods and Rites and the Ancient Calendar, 271; Houston, “Symbolic Sweatbaths of the Maya,” 139.
127 Groark, “To Warm the Blood, to Warm the Flesh,” 16; Franch, and Ruiz, Ponce de León, El temazcal en Mesoamérica, 191.
128 Cresson, “Maya and Mexican Sweat Houses,” 99, 122; Groark, “To Warm the Blood, to Warm the Flesh,” 48; Franch, and Ruiz, Ponce de León, El temazcal en Mesoamérica, 122; Throughout Mesoamerica and Maya area various groups of people still bathe on certain days of the week or a few times a week. These groups include the Nahua, Cakchiquel, Tzutujil, Totonic, Milpa Alta, and throughout the Chiapas and Guatemalan Highlands. Also, about a week after childbirth, the Tepoztlians women and girls of the same household bathe together with the newborn.
129 Groark, “To Warm the Blood, to Warm the Flesh,” 48.
130 Ibid., 49.
131 Ibid., 49.
132 Ibid., 50.
134 Groark, “To Warm the Blood, to Warm the Flesh,” 50.
135 Groark, “To Warm the Blood, to Warm the Flesh,” 51; Girard, Rafael, Los Chortis ante el problema maya: historia de las culturas indígenas de America, desde su origen hasta hoy (Mexico City: Antigua Libreria Robredo, 1949), 439, 466.
body and prevent illness because the female body’s heat, like the moon, fluctuates. It fluctuates on a monthly cycle, has a continuous increase throughout pregnancy, and a significant lack of heat after birth. Clavijero, Sahagún, and other ethnohistoric sources describe the sweatbath’s role as an integral part of childbirth, pre-partum, delivery, and postpartum stages. Sahagún described throughout fifteen chapters the sweatbath’s involvement in events beginning with marriage, pregnancy, choosing a midwife, childbirth, childcare, choosing godparents, and the baby’s baptism.136

Midwifery is one of the most important healing roles in the indigenous communities along with the curer, herbalists, and bone setter.137 Generally, midwives are well respected within a community, deliver around 95% of the births in some villages, have experienced childbirth themselves, and are postmenopausal.138 Midwives assist the mother throughout pregnancy, delivery, and postpartum care, and perform rituals throughout.139 One is chosen to be a midwife through a divine calling, visions, birth signs, inheritance, bodily movements, severe illnesses, a discovery of special objects, or personal choice.140

On a rare four-sided ceramic vase, the “Birth Vase,” believed to be Late Classic from the central lowlands, portrays midwives assisting in childbirth.141 While a frequent theme in ancient Maya culture, ancient illustrations of birth and birth rituals are rare, hence the value of the Birth Vase. Collectively the four sides, Taube explains depict birth, baptism, burial of the placenta, and offerings, and although the birth is occurring on a mountain and not inside a sweatbath, it provides insight into the symbolism and rituals performed. Side I shows a young woman accompanied by several older women, midwives with “chapfallen and wrinkled faces and long pendulous breasts,” with a “spool of cotton and a twisted snake headband,” resembling the Goddess O, a moon goddess, and Ix Chel, the Yucatec moon goddess of curing and midwifery.142 Taube explains the cotton spool headband, “the thread might allude to the development of the womb or the future ‘life-line’ of the individual. Since weaving and childbirth are among the most essential creative practices of Mesoamerican women.”143 One woman holds the mother from behind, another holds a bowl, and the mother, wrapped with sashes around her waist, holds onto twisted serpent cords, which represent a “birth rope” still used today in many indigenous communities, allowing the woman to hang while the midwife helps push the baby out.144 Bathing the newborn is the second scene illustrated, involving midwives bestowing the newborn’s life long soul, an initiation, or baptism, into the community.145 Side III is not fully understood, but is believed to be imagery of life and death, and the offering of sacrifices to the underworld gods, ensuring protection and safety for the mother and baby.146 Side IV has two images, one on top of the other, and the upper register illustrates two sitting figures, the young mother and a Pauahtun, associated with the world’s four corners, who is holding a bowl with sacrificial blades of obsidian and flint.147 An elaborate censer appears in the bottom register, which Taube believes possibly corresponds to the house’s hearth, an indication where the afterbirth is buried.148 This vase illustrates many rituals associated with childbirth and the sweatbath, discussed in this chapter and Chapter 5.

Midwives commonly use the sweatbath before birth to help relax the mother’s body, aid with positioning the baby, and assist in delivery during birth.149 Several days before the mother gives birth, the mid-

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136 Sahagún, Historia general de las cosas de Nueva España I, 420-472. In Chapter 33 he also discusses how the midwife took out a dead baby from the mother. In Chapter 34 he describes what transpires when the mother dies during childbirth.


138 Cosminsky, “Maya Midwives of Southern Mexico and Guatemala,” 179, 185.

139 Ibid., 200.

140 Ibid., 182.


142 Ibid., 632, 656.

143 Ibid., 662.

144 Ibid., 658.

145 Ibid., 664.

146 Ibid., 669.

147 Ibid., 667.

148 Ibid., 668, 674.

149 Cosminsky, “Maya Midwives of Southern Mexico and Guatemala,” 190; Moedano, “El temazcal. Baño indígena tradicional,” 298; Groark, “To Warm the Blood, to Warm the Flesh,” 50-58. Sahagún, Historia general de las cosas de Nueva España I, 435-437. The mother was given many orders: the water should not heat up her back or belly, go in the sun, eat certain foods, feel bad or guilty, look at the color red, be scared, and fast.
wife moderately heats her in the sweatbath, massages her belly, and moves the baby into place. According to Sahagún, “they would give her an herbal drink called *cioapatli*, ground up and boiled in water. And when the pains were very bad, they would give her a drink with animal tail, ground up in water, just like the other tea. With this the baby was born easily.” Midwives use teas, oils, vaginal massages, stretching, external manipulation, with a sash to aid the mother in delivery, and are skilled in delivering breech. She aids the mother in the delivery of the placenta, care for the baby, and the proper treatment of the umbilical cord. Every community has its own traditions and treatment of the umbilical cord and placenta. Severing the umbilical cord is a ritual performed by the midwife or sometimes the father, who cuts it using a special tool. The baby’s umbilical cord is saved to be buried with the placenta, which nourished the baby in utero. The placenta and umbilical cord have various treatments, however, it is frequently buried near the “natal” sweatbath or child’s home. According to Sahagún the midwife says to the baby, “This house (sweatbath) where you have been born is not just a nest where you were born, it is the dwelling to where you have arrived, it is your entrance (coming out) in this world. Here you sprout and flower; here you have come out of your mother, like a piece of cut rock. This is your crib and where you lay your head. It is your dwelling this house.” The sweatbath is sacred to the newborn, a physical and symbolic link to the ancestral lineage, and whose womblike form and role in ritual serves as the cosmic extension of the mother’s womb. Midwives interpret signs of the pregnancy, birth, and umbilical cord determining the mother’s future and the baby’s destiny: “these signs are all visible consequences of the ‘animating sequences’ or fetal soul, which the midwife is able to track, interpret, and treat because of her divine mandate and own spiritual embodiment as well as that of the fetus.”

During postpartum, the mother’s body is considered “raw” and “cold” and through a series of baths the sweatbath restores the mother’s warmth. There is great fear cold will enter her womb, and “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 steam bathing and ingestion of ‘warm’ medicine.” The midwife places herbs on areas where cold air enters the body such as knees, soles of feet, vagina, and breasts warming up the mother. Frequently, the mother bathes with an intimate group of female relatives or alone at specified intervals for a determined number of days. The baths can last up to a month after childbirth, and when finished, mother and baby are initiated into the community. Female health and childbirth has enabled the sweatbath tradition to endure, and today in certain areas it is the sweatbath’s sole purpose.

Heat: Religious Purification

The importance of the sweatbath’s purification ritual is illustrated by its location in ceremonial cores and elite residential complexes. Sweatbaths are in elite residential complexes at Piedras Negras, Palenque, Yaxchilán, Uaxactun, and Tulum, and near ball courts, main temples, observatories, and sacred natural features at Edzna, Uxmal, Piedras Negras, Yaxchilán, Copán, Palenque, Tikal, and Comalcalco.
At Ek Balam the sweatbath, in the main plaza’s center, is aligned with the main temple and near the observatory and ball court. At Chichen Itza, one of the three sweatbaths is located south of the Caracol Observatory, used for observing celestial bodies and both buildings face the same direction. Another sweatbath at Chichen Itza is located on the revered Sacrificial Cenote’s edge, the destination for one of the largest Maya pilgrimages.

Spiritual purification is essential to ritual ceremonies and festivals, and its religious association was a main reason the Spaniards prohibited by law individuals from using the sweatbath unless they were ill, and Durán writes, “I myself have torn down some bathhouses in order to cause fear, especially because these were bathhouses built in the ancient times,” and he “would threaten with punishment.” Its purification prepares individuals before rites of passage, rites of performance, rites of participation, rites of initiation, and entering sacred structures. The sweatbath itself converts into a sacred domain where the gods’ and ancestors’ presence is evoked, a liminal zone serving as a portal and transporting one between the supernatural and terrestrial realms, accessible only when purified. The sweatbath’s purification is optimal when implemented with other purification rituals.

In conjunction with sweating, the ancient Maya incorporated corporeal and spiritual purgation, removing tangible matter out of place within the body. Sweating combined with purging the digestive tract cleansed the body; defecation and regurgitation were forms of corporeal purification performed using emetic substances, herbs, and enemas. Enema jars had a blowhole on top for forcing fluid into the body, and were often stuffed with bundled leaves. Child believes several polychrome vessel images relate to the sweatbath, displaying enemas, regurgitation, and defecation. The first image is on Princeton Vase 11, illustrating preparations made to administer enemas to four deities of God N in a “supernatural sweatbath.” The second vessel image, K3007, portrays four individuals outside a sweatbath chamber, two with enema bibs holding an enema syringe and two consuming something, perhaps a restorative remedy. Child explains, “The notion of corporeal purgation that these communities believe in is linked to the fact that the more filth that one can purge from the body, particularly the digestive tract, the higher form of purification one is able to achieve. Hence, the purer state that one can attain, the higher ability that person will have to invoke the supernatural powers.” Piedras Negras’ N-1 ceremonial sweatbath’s soil samples reported “high phosphorous and heavy metal patterns fanning outward in front of all the benches...a combination of high phosphorous and heavy metals is a similar signature of an outhouse area (a previous analysis of indigenous household),” supporting Child’s strong belief corporeal purgations occurred in the sweatbaths. The liquid and acidic nature of corporeal purgation penetrated the floor over time, and soil analysis confirms the presence and location of these activities.

Spiritual purgation results from intangible matter out of place with the soul. Offending the gods was a sin, causing bodily harm and pollution, thus confessing one’s sins before entering was a step in the purification process, depicted in the Codex Magliabechiano, and used in conjunction with the sweatbath’s intense purification. It further eliminated impurities not previously removed in other purification rituals, stoking the body and soul’s heat and restoring it to its optimal state of purity.

Ball courts and sweatbaths are commonly located near each other, a ritual dyad found at Piedras Negras, as evidenced by soil samples. Child mentions a series of polychrome vessels with various gods on them performing enema, regurgitation, and defecation scenes.
Negras, Yaxchilán, and Ek Balam among others. Before participating in a rite of performance, a life or death athletic competition, the ball players’ purification was imperative. At Chichen Itza, four mural walls of the North Temple, perched above the largest Mesoamerican ball court, provide details about various rituals surrounding the ball game, including the sweatbath. Depictions on the west wall involve activities prior to the ball game and the north wall shows purification rituals: penis perforation, a blowgunner shooting birds out of a tree, and inside the sweatbath vomiting is being induced. Events following the ball game are illustrated on the eastern wall: a dying player has blood gushing from his neck, the winner is hovering over the loser’s body, and the sacrificed body is bundled up with warriors paying tribute to it. Illustrated in the murals, the sweatbath was important for its purification, vital to the ball players’ performance and preparation, and integrated into the ball game’s ritual narrative.

Sweat is essential to the sweatbath’s purification ritual. The firebox, the transformative hearth, when activated blasts hot steam enveloping the body, and causing hot liquid to emerge from the body’s skin, removing impurities and fortifying the body’s warmth. It makes the body work and heal itself by activating the body’s natural response to heat, increasing one’s heart beat and sweating. This watery domain was also an extension to the heavens, an axis mundi and supernatural portal for accessing the gods and ancestors. As a healing ritual, the sweatbath projects out and brings together many aspects of Maya life: birth, healing, therapy, hygiene, and purification rituals, situated among series of related rituals.

1.4 The Emergence of Rebirth

The Drain

Emergence into the world is the sweatbath ritual’s final stage, commencing with the doorway opening, releasing billows of steam, condensed water, and purified bathers. Typically in ancient sweatbaths the drain is the entrance’s width, symmetrically bisecting the sweatbath chamber, roughly a foot below the bench height, and connecting the firebox and entrance. During the ritual the doorway is sealed, collecting and containing the condensed water in the drain and near the doorway. Because of the slight slope towards the entrance, when the doorway opens, water flows out and down the subsequent terraces. As a symbol of fertility, water is shown flowing out the sweatbath’s side or front in the Codex Magliabechiano, Florentine Codex, Tudela Codex, Codex Vaticanus 3773, Codex Borbonicus, Codex Borgia, Codex Mendoza, and Aubin Codex (Figure 1.01, 1.02, 1.03, 1.04, 1.05, 1.08, 1.10, 1.11). Drains are not evident in the codex images, except for the trough dug into the earth portrayed in the Florentine Codex, however, contemporary sweatbath plans indicate water generally sheds to interior edges or towards a sunken drain at the entrance. In the rounded sweatbath from Milpa Alta, Mexico the floor is slightly curved, its center the high point, and a small grooved channel around the internal perimeter collects water from the walls, channeling it towards the drain (Figure 1.26). Clavijero echoes this in his description, “the pavement of the Temazcalli is a little convex, and lower than the surface of the earth,” and the bulging floor would have shed excess water to the edge. The entrance’s sunken drain also serves as a step down for easier access into the sweatbath, and afterwards, water is released flowing over earth, in a paved channel, or through rocks. Water’s release is believed to be symbolic of birth.

Life-Giving Clouds and Newborns

Upon opening the door, hot steam trapped inside the sweatbath quickly escapes as a billowing cloud, similar to life-giving clouds produced by caves. Once hot air has escaped and water is flowing out the doorway, bathers emerge head first into the light, a similar posture to how they entered, on hands and knees, in a tucked position, or on their stomach. Eliade references this symbolic emergence, “The sun,
plunging everything into darkness of death and into the primordial waters, symbolic of the uncreated and the virtual, resembles both the embryo in the womb and the neophyte hidden in the initiatory hut. When the sun rises in the morning, the world is reborn, just as the initiate emerges from his hut.”

In Mesoamerican creation myths the sun died ending the world, and the sun’s new dawning in the Popol Vuh, brought forth a new world. Dawn imagery is associated with rebirth, and like the sun, the bathers’ emerge from the dark watery realm through the doorway, transitioning into light, the world of the living, reborn.

Exiting completes the cycle, which began with entering into darkness, the world of the dead. Emergence from darkness into light is reminiscent of the ancestral cave Chicotozmoc, illustrated in the Codex Selden and Historia Tolteca Chichimeca, where humans emerge from the cave’s dark open jaw. In both instances, humans emerge out of an aperture in earth, symbolic of life and its inherent perpetuity.

After leaving the sweatbath, one of three events occur: cold water is dumped over the body, the bather jumps into a natural body of water to close their pores, or the bather is wrapped in warm blankets to allow their body to continue sweating without getting cold. Clavijero describes, “When the evacuation desired is obtained, the vapor is let out, the entrance is cleared, and the sick person clothes himself, or is transported on the mat to his chamber, as the entrance to the bath is usually within proximity of his habitation.”

Protection against cold and cold winds prevents it from easily entering the body and causing illness. Afterwards warm teas and food are consumed finalizing the cleansing process and replenishing the body’s lost fluids.

**Awakening the Senses**

The sweatbath awakens the body and its senses. Intense sweating causes old skin to slough off, like a snake shedding his skin, leaving the body with a new soft layer of skin, symbolic of regeneration. The entire body breathes during the sweatbath ritual, passing first through the nose and mouth, deeply into the lungs, through every pore, and awakening the body’s senses, activating a renewed bodily awareness and shifting how one functions. While one might have their eyes open, the sweatbath’s interior is dark, and the duration spent in darkness requires bathers to rely upon their sense of touch and sound, instead of sight, humans’ most heavily relied upon sense. The bathers’ sensory experience is akin to a fetus in the womb, relying on touch and sound, more than sight. The hot humid vapors breathed in, cleanse the nasal passages and open up airways, enhancing the smells and tastes from drinks and food consumed during and after the bath. Upon exiting the sweatbath one shifts back to their previous sensorial functions, however, with a renewed awareness for smells, tastes, and visual stimuli.

Emergence is rooted to the act of birth, replicating the gods’ creation acts narrated in Maya mythology. The vapor and water’s release out the doorway as the bathers emerge reflects childbirth, a newborn’s entrance into the world, and the sun’s rebirth after death, bringing forth a new world with the emergence of light. Renewal is expressed through the body’s sensorial awakening.

**Conclusion**

Fundamental to the sweatbath’s rooting is its conception as a womb situated specifically in Maya culture, mythology, religion, and the realm of health, healing, and purification. The sweatbath is symbolically and mythologically infused with creation aspects: it is a place of physical and spiritual birth, its design creates a womblike domain, and the ritual’s objective is creation and birth. Creation, associated with the womb, is emphasized through the sweatbath deity, frequently referred to as the grandmother of the gods and grandmother of the mothers, therefore, the root and link of all life. Closely related, the sweatbath’s mythology is associated with the moon, representing perpetual transformation and flux of the female body’s monthly cycle, and as the progenitor of life, past, and future generations. Physical birth occurs inside the

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183 Eliade, Rites and Symbols of Initiation, 59.
184 Oftentimes the sweatbath rituals were at sunset or at night, however, the outside light is still brighter than the sweatbath’s dark interior.
186 Clavijero, The History of Mexico, 430.
187 Cosminsky, “Maya Midwives of Southern Mexico and Guatemala,” 196. Similar to the wrapping in blankets, the Tzeltal Maya believe that a recently born baby must be swaddled for fifteen days and limit contact to the immediate family to “guard against soul loss and illness from ‘hot’ glances of outsiders or envy-related illness. They also believe if the baby isn’t swaddled it will snatch everything and later turn into a thief.
sweatbath and newborns, emerging from their maternal womb, enter into a symbolic womb, nourishing daily the body and soul and throughout one’s lifetime at critical life moments of spiritual rebirth. Functioning like the cosmic umbilicus, the sweatbath when activated converts into an *axis mundi*, independent of time and place, connecting bathers to the gods and ancestors. The process of death, transformation of the *prima materia*, creation, and re-birth, resembles other natural processes like agricultural, assimilating with the Maya belief human bodies are made from corn, thus corn’s transformation from seed into plant and food, likewise reflects the sweatbath’s transformative process. Lastly, the sweatbath’s design and construction strengthen its rootedness in creation, establishing a womblike ambiance-dark, warm, and watery, and influential of not only how the body moves, but how it perceives its surroundings, infant-like. The conception of the sweatbath as a womb of Mother Earth is its symbolic epicenter, deriving its constructs from Maya mythology, language, notions of health and healing, the physical body, architecture, and ritual.

Structure, ritual, and body are woven together through the sweatbath, dynamically relating to each other in meaningful ways. It is not an assemblage of parts independent of each other, but each architectural element as described has a ritual function and conveys more than its mere physicality. The sweatbath’s darkness in not chance, but deliberate, meaningful, and designed with significance. Similarly, the short, low doorway restricts warm vapors from easily escaping, but serves as a threshold between the sacred and profane worlds, and relates to the body through scale, engaging it in unique movements meaningful to the sweatbath ritual. The sweatbath structure is layered in symbolism, and yet underlying and fortifying it are natural processes, mixing fiery rocks and water, and awakening the body’s nature within by heating it and making it sweat, enabling self-healing and seeking its own equilibrium.
Replicating the cosmos was integral to Maya art, culture, agriculture, architectural design, and ritual. Their belief, and therefore need, to create and consecrate a sacred built world inspires the Maya replication of the gods’ quadripartite world, tripartite vertical division, and central axis mundi. Proximity to the sacred dwelling, or being within the sacred space, guaranteed power, fortitude, vitality, and the gods’ presence. As a result, the sacred precinct, derived from the macrocosmic scale of the earth, was reiterated again and again at countless scales, one nesting inside and alongside each another. As a microcosm, new worlds are created and physically inscribed into the land in the form of agricultural fields, plazas, buildings, and ritual processions, and manifested in material objects such as clothing, stelae, codices, murals, burials, and ritual implements.

The four-sided, four-cornered quadripartite world is reiterated at several scales in the images of Yaxchilán, the sweatbath’s landscape, and sweatbath structure. Yaxchilán’s main ceremonial space, the Great Plaza, running parallel to the river, is linear and subdivided into four sections. Each subdivided section has its own ritual narrative and spatial quality, and while it is not a perfect geometric four-sided shape, each plaza is defined by major and minor buildings on all four sides gathered around a common space (Figure 2.01). Seen in the map, two sweatbaths are located in the two most western subplazas, both on the northern side. The third sweatbath is situated in an intimate courtyard of the elite residential complex, the Small Acropolis, where private rituals were performed (Figure 2.02). All three sweatbaths help define each plaza’s four-sided perimeter, each a distinct landscape with different buildings, functions, and narratives. On a smaller scale Yaxchilán SB 17, a typical Maya sweatbath, has four walls meeting at four corners and a firebox centered within the space (Figure 1.16, 2.03). The firebox is the physical and spiritual hearth of the sweatbath, a miniature replica nested inside, and the sweatbath’s smallest quadripartite detail. This is arguably the center, its point of origin, where the fiery rocks and water unite and transform the sweatbath’s ambiance, giving it life and life to others. This quadripartite model is replicated at the scale of the structure, terrace, plaza, and city.

This chapter investigates manifestations of four-sided and four-cornered cosmological
models in Maya culture. First, the rooting of the cosmological model is explored through the *Popol Vuh*, codex images, and the agricultural process. Practices and rituals surrounding the clearing, planting, and harvesting of corn are consecrated and inscribed into the land, continuously honoring the four corners and center. Section two explores the plaza, its role in ritual and daily life, and the design of Yaxchilán and its plazas, where three sweatbaths are located. Third, replications of the quadripartite model are investigated in the sweatbath at the scale of the terrace, structure, doorway, and firebox in addition to twenty-eight sweatbaths at fourteen Maya sites. Lastly, relating to the human body, typical Maya sweatbaths consist of two symmetrical halves divisible along the façade’s midline with a vertical tripartite division.

### 2.1 The Cosmos in Text, Image, and Land

Described in the introduction of the Maya creation story, the *Popol Vuh*, is the construction of the four-sided and four-cornered earth, key to understanding the reverence for the number four in Maya culture, architecture, and sweatbath.

> It takes a long performance and account to complete the emergence of all the sky-earth:
> the fourfolding siding, fourfold cornering,
> measuring, fourfolding staking,
> halving the cord, stretching the cord
> in the sky, on the earth,
> the four sides, the four corners,

*as it was said,*

> by the Maker, Modeler
> mother-father of life, of humankind,
> giver of breath, giver of heart,
> bearer, upbringer in the light that lasts
> of those born in the light, begotten in the light;
> worrier, knower of everything, whatever there is:
> sky-earth, lake sea.¹

—Part I, *Popol Vuh*

The passage describes the gods’ construction of the earth and how it was founded, employing architectural language in the passage’s first half, such as “dividing,” “measuring,” “staking,” “halving the cord,” and “stretching the cord,” similar to that used for laying out buildings. Thus the gods were like architects, and all subsequent creation acts were likened to those of the gods, echoing throughout Maya architecture and culture and still prevalent today.² The second half of the passage describes the spiritual aspects for animating the world, the breath, heart, and shift from darkness into the light. The physical object is accompanied by its spiritual significance.

#### Cosmological Diagrams

Maya cosmological diagrams are another foundational source in Maya culture, emphasizing the quadripartite composition described in the *Popol Vuh*’s introductory lines. In the Madrid Codex is a Maya cosmological diagram, square with four corners and sides, a defined center, four linear projections distinguishing four separate quadrants, and a series of 260 small dots weaving around the diagram like a rope (Figure 2.04).³ Each dot represents a day of the 260-day ritual calendar used for divination.⁴ Visible are numbers, bars, and dots in each corner, most

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³ Códice Madrid (Tro-Cortesiano). (Guatemala City: Amanuense Editorial, 2007), 75-76.
likely referring to the days of the calendar, and footprints walk toward the center in the angled sections. In the middle portion of each side are four different scenes, each with two people framing a different object. The scene in the top is represented with a cross and the glyphic symbol for sun, *k’in*, meaning “day,” and on the bottom a sun glyph representing “west.”

The quadripartite division of the diagram represents the sun’s movements: the daily east-west and the annual north-south. The sky is divided into two quadrants by the sun’s daily movement, rising in the east and setting in the west. These two quadrants are divided in half by the sun’s annual movement between its two extreme positions, north and south, the winter and summer solstices respectively. The center of the four quadrants is marked by the sun’s zenith. In these diagrams east is on top, and west is on bottom, and this directionality is embedded in language. The Tzotzil Maya associate direction with color, red (east) is “upwards” and black (west) is downward, and for the K’iche Maya in Quezaltenango, east is called *axix* “above” and west is called *ikem* “below.” For the K’iche Maya north and south are known as *k’e lik* “to the side,” and associated with the left and right hand of the Sun God; south is the left hand and north is the right hand. For the Tzotzil and Lacandón Maya north and south are also the “sides of heaven.”

The four quadrants have different associations dependent on the specific Maya group. Bassie-Sweet, who gathered cosmological information from Maya communities and ethnographic sources, summarizes the east quadrant is associated with the rising sun and color red; the west quadrant is related to the setting sun, death, and color black; the north quadrant is associated with the ancestral dead and when the fields are smoky and burnt before the rains, thus color white; and south is associated with ripe corn and color yellow. For the Tzotzil Maya each quadrant is related to a Tzotzil god: east is white and linked to the rain god; north is also white and associated with the corn god; west is black linked to death god; and south is red where the wind god lives. Each quadrant is also known to represent famines, color of corn, year bearers, and specific festivals, among others.

The Aztec cosmological diagram from the Codex Fejérváry-Mayer closely resembles the Maya cosmological diagram (Figure 2.05). Both account for time with 260 dots weaving around the perimeter and have a center with four projections toward the corners and the sides. Two different quadripartite divisions are present and overlap: one divides from the corners and one from the sides. In the Aztec diagram each quadrant has meaningful signs and depictions; in each corner there is a specific color, bird, and year bearing object, such as a rabbit, a piece of flint, a stick, and house. The creator god is at the center, and each quadrant radiates outward from him, from whom “life-giving streams of blood flow.” Four different trees form a cross, and each tree is framed by two people, one on each side. The tree located in the top center quadrant is emerging from a sun disk, indicating east and the rising sun, and directly below is a tree rising out of a

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6 Ibid., 17.
7 Freidel, Schele, and Parker, *Maya Cosmos*, 42; Tate, Carolyn Elaine. *Yaxchilán: the design of a Maya ceremonial city*. (Austin, Texas: University of Texas Press, 1992), 112.
13 Ibid. 17-19.
16 Aveni and Hartung, “Maya City Planning and the Calendar,” 1.
Figure 2.01  Map of Yaxchilán’s Great Plaza and SB 10 and SB 17 identified. Based upon Ian Graham’s 1977 map after John Bolles’ map of 1931.

Figure 2.02  Map of Yaxchilán’s Small Acropolis and SB 48 identified. Based upon Ian Graham’s 1977 map after John Bolles’ map of 1931.

Figure 2.03. Ancient Maya sweatbath firebox, Yaxchilán SB 17
Figure 2.04. Maya cosmological diagram, Madrid Codex, 41-42 [used with permission from FAMSI]

Figure 2.05. Aztec cosmological diagram, Codex Fejérváry-Mayer, 1 [used with permission from FAMSI]
skull, indicating west where the sun dies. Both north and south trees are rising out of pots, but they do not touch the center space nor do the people’s feet, prioritizing the axial movement up-down over the horizontal side-side movement.

Scholars debate whether or not these diagrams were used as a template for city layouts, however, regardless of whether or not they were actually used as templates, arguably what is most important is perpetuation of images of four corners, four sides, four quadrants, and a center. The center is a focal point where each quadrant converges and merges, and as Mircea Eliade writes, “If the world is to be lived in, it must be founded - no world can come to birth in chaos of the homogeneity and relativity of profane space. The discovery or projection of a fixed point - the center - is equivalent to the creation of the world.” The center anchors and roots the world and is where all things originate from, evident in the diagrams. The calendar dots weave in and out touching each inner and outer corner, constantly repeating the same pattern, rotation after rotation. In each quadrant people are sitting or standing with their feet towards or touching the center, and in the Aztec diagram trees and plants always grow away from the center square. Quadrants in both diagrams radiate from the center, allowing them to be similarly viewed from the center outwards in all four directions.

Land Inscriptions

Agricultural rituals performed today in many Maya communities still maintain a reverence for the four corners and central hearth, inscribing it into earth. Festivals, dramatizations, and rituals are performed when the fields are cleared, burned, planted, and harvested at punctuated intervals, coinciding with specific rising and setting sun and celestial bodies’ positions on the horizon and in the night sky. The four corners, delineating boundaries and anchored by a center, the “navel,” are honored at the various agricultural stages, centering the world, “focusing the spiritual forces of the supernatural within the material forms of the human world, rendering these forces accessible to human need.” The agricultural process is characterized by intensive work, a collective effort involving the gods, priests, and humans, which reveals man’s dependence on the gods for sustenance and the magnitude of ritual performances honoring and replicating the gods’ original sacred acts.

Because it is critical to perform specific rituals on certain days, the agricultural process is intimately related to the 260-day ritual calendar and fine-tuned by the celestial bodies’ movements, which indicate the arrival of the wet or dry season. Ensuring a community’s survival, priests precisely decide when a community should begin to prepare the land, burn the field, plant the seeds, turn down the corn, and harvest the crops, determined by the optimal combination of the celestial bodies’ positions and day of the ritual calendar, evoking auspicious forces. Cultures throughout Mesoamerica share the 260-day ritual calendar, one of several calendars utilized, which has many names dependent on the region: the cholq’ih for the K’iche in Guatemala, the tzolk’in for the Yucatec and Ch’ortí’ Maya, among other Maya communities, and the tonalpohualli for the Aztecs in México. The ritual calendar begins every year in early February and completes its cycle in late October, which the Ch’ortí’ Maya divide into two forty day periods before the

17 Ibid., 1.
18 The Maya conceived of the sun and earth’s movement in a distinct way of than our current understanding. The sun’s movements were considered up and down: the sun was up during the day and down, or underneath, in the underworld during nighttime. Therefore, when the sun slipped below the western horizon it went under the earth’s surface.
21 Girard, Los Maya, 62-63.
22 Girard, Los Chortí’s ante el problema maya, 570. Freidel, Schele, Parker, Maya Cosmos, 131.
rains arrive, followed by nine twenty-day months, 180 days of rain. In total the solar year is divided into two halves: 180 rainy days, “winter,” and 180 dry days “summer.” Concluding the first 80 days, the fields are cleared, burned, and prepared for planting, which coincides with the sun at its zenith position announcing the arrival of the rains. Ch’orti’ Maya among other agricultural based communities in Mesoamerica believe the zenith is a critical solar position because the sun is “not walking on the side,” but “going straight,” traveling directly overhead, perpendicular to the earth, thus the optimal position for the earth to be fertilized.

The four-corner rituals are manifested at the scale of the city, the landscape, field, temple, and human body. According to Girard, a Swiss anthropologist, “The Ch’orti’ are truly obsessed with the quadrangle divided by a cross that serves as a geometric pattern, beginning with the town or community, at the altar and the temple, the worked lands, the field, and even in the cutting of the fruit in four equal parts.” Girard worked extensively with the Ch’orti’ Maya in Guatemala during the mid-twentieth century, and the following descriptions are predominantly derived from his work - a small selection of the many four-corner rituals integrated into the agricultural process. The Ch’orti’ town of Quezaltepeque, like many others, is based upon the cosmological model; the town’s four roads are “four doors to the entrance of the world,” demarcated with piles of stones and branches of pine and cypress trees dividing the town and its four neighborhoods. At the town’s center is a public square centered with a ceiba tree, the tree of life and image of the universe.

Another large-scale example of the four-cornered world is a pilgrimage to four lagoons transpiring throughout two months. Each pilgrimage originates at nighttime from the center of the Ch’orti’ Maya town Quezaltepeque, the Temple of Agricultural, and processions towards a lagoon in one of the four quadrants where sacred water is gathered and brought back. Community members make offerings to the gods and spirits, asking for permission to work the earth, to send fire to burn the land, and rain to sustain the crops. In January, before the ritual calendar begins, the first pilgrimage is made by a community delegation to a lagoon in the west, and the second journey, twenty-five days later, coinciding with the beginning of the ritual calendar, is towards the eastern destination, the axial movement honoring the sun’s movement through the sky. The third pilgrimage is to the north, with the last pilgrimage to the south, days before the equinox. The fifth and final celebration occurs at the Temple of Agriculture, anchoring the four points in the sacred landscape. Here priests perform a series of rituals before any agricultural activity is performed in the fields. At the end of April until the beginning of May, the Coming of the Rains or the Festival of the Cross, is performed when priests declare the sun is nearing its zenith position and Orion and the Pleiades are precisely positioned in the sky. Priests dramatize the coming of the rains with thirteen people in a processional line circling around the temple five times, pausing before each of the four altars. Mathematically the ritual represents the ritual calendar: thirteen people procession five times around the temple and its four altars, resulting in 260 turns. At the four corners of the temple, the priests create large plumes of incense, representing the rainy season’s clouds, thus the coming of “winter.”

24 Girard, Rafael, Los Maya: su civilización, su historia, sus vinculaciones continentals (México City. Libro México, 1966), 64-65; Girard, Rafael. Los Chortis ante el problema maya: historia de las culturas indígenas de America, desde su origen hasta hoy. (México City: Antigua Libreria Robredo, 1949), 416.
25 Girard, Los Maya, 64.
26 Girard, Los Maya, 64-65; Girard, Los Chortis ante el problema maya, 416.
27 Girard, Los Maya, 64.
28 Girard, Los Chortis ante el problema maya, 570.
29 Ibid., 572.
30 Ibid., 572.
31 Ibid., 565.
32 Ibid., 414-416.
33 Ibid., 422.
34 Ibid., 425.
Preparing the Land for Cultivation

The Maya cultivate many crops, such as beans, squash, chayote, and chile, but corn and cacao are deified. Each corn seed is considered a soul, and planting it, “interring it,” is a life-giving act: “the seed is dead, it must be ritually heated in order for it to germinate, just as sick people must be ritually heated to regain their lost souls.” Corn seeds are treated with utmost respect and care because planting corn is an act of fertility performed by men who fertilize the earth each time they push the planting stick into the soil, creating a hole where the seed is placed. For this reason, men and priests refrain from intercourse days before planting “to save their fertility.” Priests, who are ultimately responsible for the cultivation’s success, sleep in the temple before planting begins and do not cut their hair or nails, growing it long, like new plants. Planting is considered a “pleasant act” not a punishment, and while it is for economic purposes, planting is imbued with religious and social significance. It is a sacred act and the field is as sacred “as the altar” or “table,” thus each person’s actions and words should be respectful and with utmost reverence. Like the temple, impurities are not allowed to enter the field, thus pregnant and menstruating women are prohibited.

Similar to the Popol Vuh’s narrative, square or rectangular fields are measured with ropes and the four corners are staked out or marked with stone piles. Ch’orti’ Maya agriculture field boundaries are defined by placing stones at the corners, and when working the fields, they are further divided into smaller squares, simultaneously creating “a microcosm inside the macrocosm.” Agricultural fields are not always a perfect square and oriented in the same direction, but adapt to take advantage of the best terrain. Once the field is defined, the existing vegetation is cut down, placed in piles, and burned, leaving it clean for planting. The ash from the burn fertilizes the soil, ideal for sowing new seeds. The burning of the field begins on or near the equinox with the Festival of the New Fire. Priests perform rituals in the temple, later reiterated in the field, different but expressive of the same idea. In the temple priests smoke cigars, blowing smoke to the four corners, keeping the bad spirits away and protecting the crops from harm. The smell of tobacco is believed to scare away bad spirits and carry prayers to the heavens, and plumes of smoke represent clouds bringing the rain. Farmers reiterate this act: smoking in the fields before planting to scare away bad spirits and the field’s smoke is believed to bring the rains.

Planting

For the K’iche Maya the first ceremonial planting begins before sunrise, and “while the moon and the morning star still shine in the sky.” The farmer marks the field’s center, its navel or heart, with a cross (tree) or an altar, he burns a white candle, performs offerings of food and

35 Girard, Los Chortis ante el problema maya, 632. Bassie-Sweet, Mayan Sacred Geography and the Creator Deities, 22. Corn, bone, and teeth are closely associated in the Maya languages. The Maya believe they are made of corn, thus their diet consists of significant amounts of corn in various forms. The corn plant is likened to humans, the small silk tufts are hair, the husks are a skirt or clothing. Babies would have their heads bound so the cranium would acquire the “beautiful” cob-like shape.

36 Bassie-Sweet, Mayan Sacred Geography and the Creator Deities, 45. Carlson, Robert, and Martin Prechtel, “The Flowering of the Dead: An Interpretation of Highland Maya Culture,” Man 26 (1991), 28. The Tz’utujil Maya consider the seed to be “interred” thus through the act of burying it transforms and comes alive.

37 Girard, Los Chortis ante el problema maya, 632.
38 Ibid., 613.
39 Ibid., 633.
40 Ibid., 631.
41 Bassie-Sweet, Mayan Sacred Geography and the Creator Deities, 47; Freidel, Schele, Parker, Maya Cosmos, 129; “Redfield, Villa Rojas, 1934, p. 42.
42 Ibid., 570.
43 Girard, Los Chortis ante el problema maya, 637.
44 Girard, Los Maya, 269.
45 Girard, Los Chortis ante el problema maya, 600-601.
46 Girard, Los Maya, 51.
47 Wilson, Richard, Maya Resurgence in Guatemala (Norman: University of Oklahoma Press, 1995), 101; Bassie-Sweet, Mayan Sacred Geography and the Creator Deities, 45.
beverages, and “swings the incense burner to the four corners, the sun, the moon, and Venus.”

The farmer then makes a hole in the center of the field in front of the cross or altar, places several seeds, and few feet away he makes four other holes replicating the field’s larger configuration. In the Mam community in Santiago Chimaltenango, a similar ritual is performed in the field’s center before dawn: a cross is erected, candles are burned, and a mixture of incense and blood from a sacrificed chicken are burned while praying. Farmers in many Maya communities, such as the Tz’utujil Maya and Tzotzil Maya, among others, honor the four corners burning incense, lighting colored candles, and sprinkling animal blood or beverages in each corner - all objects which provide warmth. In the field’s navel the Tz’utujil Maya place “quantities of incense, drinks, chocolate, sugar, honey, and sacrificial turkey blood as well as the ash from twin ears of corn that have been blessed and burned.”

The Tzotzil Maya in Zinacantan employ a ritual specialist who leads a procession “a circuit to the cross shrines that mark the corners and center of the field.” The procession sometimes extends beyond the immediate boundaries of the field, reaching out into the natural landscape to a waterhole, well, or cave, integrating the larger macrocosm into the intimate microcosm of field, nesting one cosmos inside the other. Often vigils are held the night prior to planting, specific foods are consumed, and everyone gathers at dawn when the sun begins to illuminate the sky. The farmer and his helpers begin planting using the sun’s warmth to heat the seeds and give life.

For the Ch’orti’ Maya planting season begins at the end of April or beginning of May, after the end of the first eighty days when the sun reaches its zenith position. In the center of the field a hole is made where offerings are placed, similar to the “navel” underneath the temple’s altar. Sometimes three linear holes are made, indicating center, east and west, or five holes are made, one in the center and one in each of the field’s four corners. With the three-hole configuration, bird remains and a gourd filled with chilate, a drink made from corn, chocolate, and chile, are placed in the center hole, in the eastern hole chilate is poured, and in the western hole fish and copal are offered. Then, like in the temple, virgin water is poured over the holes and at the four corners, and crosses are placed at the corners and center to protect the field. Ashes are also used as a powerful antidote to keep bad spirits away and encourage seed growth. Near the summer solstice the field is cleaned of weeds, and during the break in rain in August a second round of planting occurs. Field cleaning in conducted in September, and in October the harvest begins, completing the tzolk’in cycle and beginning the one hundred days of rest. Throughout the agricultural cycle rain, wind, and protection rituals are performed, and after the harvest, storage rituals are performed ensuring the crops, stored in the granaries, do not spoil through rotting or insect infestation.

Agriculture is sacred to the Maya and every action and gesture is rooted with meaning. Replicating the gods’ acts and reiterating the cosmological model is essential at macro and micro scales and as different expressions of the same ritual, such as the priest in the temple and the farmer in the field. The four corners and center are displayed through the body’s movements and

51 Bassie-Sweet, *Mayan Sacred Geography and the Creator Deities*, 45; Wilson, Richard. *Maya Resurgence in Guatemala*. Planting the seeds causes shift from cold to hot to occur, and reflected in the food and drink consumed and used such as liquor, cigarettes, candles, and blood.
52 Girard, *Los Maya*, 269.
53 Girard, *Los Chortis ante el problema maya*, 634.
54 Ibid., 634.
55 Ibid., 634-635.
56 Ibid., 269.
57 Ibid., 269.
gestures, and physically inscribed into the land through the placement of objects and physical working of the earth. Extensions out into the landscape are made to sacred places, such as the lagoons, centering and anchoring the constructed and natural world through objects like a temple or navel in a field. Agricultural rituals are a constant centering of the local space and energy, demonstrating the importance of ritualizing and sanctifying space. The field is the cosmos and the cosmos is the field.

2.2 The Maya Plaza and Yaxchilán’s Built Form

The Plaza

Dating back to the Early Formative Period, the plaza is a distinguishable feature in Mexican and Latin American cities where a city’s social and political activities occur and important government and religious buildings are located. When the Spaniards arrived to the New World it was the public quadrilateral space they admired; it was where markets were located, theatrical and cultural events were celebrated, and administrative and civic activities took place. Even restricted spaces, such as elite residences, were similarly configured around quadrilateral spaces, delineated by buildings on four sides facing inwards, and where the elites lived and performed private rituals and ceremonies. Plazas were the social and ceremonial heart of Maya cities, and where the celebrations and rituals were performed for all the citizens to observe and participate in. Like the field’s navel, plazas were fundamental in establishing a city, which first included choosing a site, organizing and sanctifying it to “reap the security and benefits of living in a sacred and properly ordered place, under the protection of a favored and powerful ruler.” Space for plazas and buildings was created by clearing dense jungle vegetation, manipulating terrain, modifying various topographic conditions, raising the land, and truncating and leveling hilltops. According to Miller, “The Maya very rarely leveled a hill to rationalize topography, but they frequently hauled massive amounts of fill to expand and accentuate local features,” and many plazas, like at Yaxchilán, were created by filling in and leveling the sloped terrain.

The Maya plazas were controlled by the elite and ruling class and served multifunctional purposes. Although they appear as open spaces, they are opposite of limitless space, and “the Maya valued the plazas as much as the volumes. Larger buildings demanded larger plazas, and so the largest constructions, whether at Late Preclassic El Mirador or Classic Period Tikal, received the grand attendant spaces.” Frequently Maya temples are in a plaza’s center or anchoring the sides, and perimeter buildings, generally facing inward, surround the plaza and define the internal space, making it a focal point for important events. Stairways, elevated platforms, and temples, amongst other buildings, were stages for rituals and performances, and Maya audiences occupied and observed from the flat areas. Houston explains, “the ascending levels of...
a platform mark the place for focal activities, such as the heaping of tribute, the arrangement of visitors or other participants in court ritual, or the display of captive mutilation and sacrifice, and “musical performances and formal address and unwrapping of balls that accompany ball play.” Priests could ascend pyramidal temples and perform rituals, distancing themself socially and spatially from others, thus the architecture not only reinforced social hierarchy, but served as a meaningful backdrop.

Major classifications of architecture such as temples, ball courts, elite residences, observatories, sweatbaths, and other important ritual structures are part of plazas and contribute to their unique character. Plazas can be divided into four groups: triadic group, quadrangle group, acropolis group, and royal court group. Triadic groups consist of three temples arranged around a quadrilateral space, and a fourth side open with the dominant temple facing it and the remaining temples facing each other. Quadrangle groups enclose a space on four sides, and while they do not entirely seal off the space, they physically and visually remove access to the external landscape. Acropolis groups include buildings located on elevated hilltops often far removed from the public space, hierarchically organized as a series of platforms, stairways, and terraces, which create visual connections between public and private domains while restricting physical access. For this purpose of this research, royal courts are elite residences, characterized by a unified group of buildings structured around a series of internal courtyards, sometimes walled and elevated above a surrounding area.

The Maya rulers were kings who lived in elaborate residences near many ceremonial centers and many of these elite residential buildings remain today. Scholars like Inomata and Houston use the term royal court, inclusive of “court,” as the royal people, most importantly the king, and the physical “court,” the royal residence and place where elite ceremonies and rituals were performed. Webster conceives of royal courts as “plazas, causeways, and monuments,” and the “whole set of court facilities that maintained the royal family and its closest associates, as well as the larger institution of rulership in all its political, ritual, and ideological dimensions, and provided the stage for royal drama.” Webster’s definition of royal courts is accurate from the perspective the Maya king was considered a vortex and his presence made space royal, however, it homogenizes instead of distinguishes space. Acknowledging many Maya ceremonial centers might have been exclusive to the elite because much of the actual sites are unexcavated or no longer remain, for the purpose of this discussion and despite the overlap, the royal court is limited to elite residences, where the king lived, differentiated from spaces such as pyramidal temples and ball courts.

The royal court’s residence consists of a series of plazas or courtyards surrounded by elaborate structures, residences, embellished facades, kitchens, meeting rooms, open halls, shrines, and altars where many in the royal court lived, hosted meetings, received royal dignitaries, and performed intimate celebrations and rituals. It was where “royal possessions, including ceramic masks, pyrite mirrors, and carved bones and shells,” were housed. These dwellings were more elaborate spatially, functionally, and ceremonially than common dwellings.

68 Houston, “Classic Maya Depictions of the Built Environment,” 361.
70 Inomata and Houston, Royal Courts of the Ancient Maya, 1.
72 Takeshi, “King’s People,” 32-39; Webster, “Spatial Dimensions of Maya Courtly life,” 44. The king’s entourage most likely included: royal relatives, noble and non-noble females, lesser nobles and their families, administrative and military personnel, other royal dignitaries, artists, entertainers, medical practitioners, servants, and so on.
Yaxchilán’s Plazas and Built Form

Investigating Yaxchilán’s spatial arrangement is crucial to understanding the three sweat-baths’ placement within the plazas. Yaxchilán is typical of ancient Maya cities as the majority of the buildings form sides of plazas giving definition to the ceremonial cores. It is unique in that there is not one large plaza, nor one dominant building, and instead, the Great Plaza is a series of subdivided spaces with connectivity to the entire site, including a pyramidal temple, ball courts, stelae, and altars, which collectively accommodated a range of activities. Through the use of steep topography and grand stairways, structures are made prominent by elevating them on hilltops, visible at a distance but removed from the public space.

Many factors influence a city’s design and construction such as topography, climate, religion, astronomy, social considerations, protection, and chance. At Yaxchilán the Usumacinta River and the karst hills significantly influence the built form and the plaza’s location. Yaxchilán’s most significant collection of buildings lies along the river’s bend on a narrow sliver of land, which was raised and leveled off, providing space for a linear plaza (Figure 2.01). Raising the plaza removed it from the frequent threat of flooding in the wet season, yet still provided access to the water.74 All the terrain south of this thin shelf is composed of steep karst hills separated by ravines, which were severely truncated to accommodate simple plaza configurations, and steep stairways were built making them accessible. From the center of the flat shelf, an S-curving ridgeline climbs toward the southeast, up to the highest hilltops, and although the width of the ridgeline is minimal and vertical drops into the ravines present a dangerous situation, individual or paired buildings were placed at various terraces along the ridgeline (Figure 2.06).75 Flat spaces, truncated hilltops, and terraced ridgelines created three distinct spaces for construction.

The Plaza in the Flat: Four Plazas

The Usumacinta River’s influence on Yaxchilán’s settlement patterns is apparent in the map. Yaxchilán’s long flat plaza, the Great Plaza, is perched above and runs parallel to the river, which shifts slightly as the river curves around the omega-shaped land. The plaza is bound between two natural features, the river to its north and the steep limestone hills to its south. The Great Plaza is oriented northwest to southeast, varying in width from twenty meters to fifty meters, and is where the city’s concentration of buildings is located. The first significant modification made to the natural landscape was leveling the original slope, filling it with rubble, and creating a continuous flat space for the plaza.76 On average the plaza was raised two to six meters in elevation and a retaining wall was constructed along the river.77 It is on this modified terrain, cleared of vegetation and protected from the river, that Yaxchilán’s first buildings were constructed.78

In subsequent construction phases, the Great Plaza’s flat terrain was further extended in a northwesterly and southeasterly direction through a similar process of rubble fill and leveling.79 Distinct from prior configurations, the southeastern end of the Great Plaza widened as the river curved, shifting overall building alignments. In this area, fewer ritual buildings were constructed than other parts of the Great Plaza; the most important buildings were contained within the original plaza and conformed to the earliest constructions. In total the Great Plaza is subdivided into four spaces, physically and ritually distinct (Figure 2.01). On the Great Plaza’s western end is a

74 García Moll, Roberto, La arquitectura de Yaxchilán (México City: Instituto Nacional de Antropología e Historia, 2003), 343.
75 Among this ridgeline a third of the way up was the quarry, which most likely supplied stone for the site, allowing easy transport downhill to the rest of site.
76 García Moll, La arquitectura de Yaxchilán, 337, 342-351. Maps of Yaxchilán’s evolution are provided and based upon the developmental stages established by García Moll.
77 Ibid., 343.
78 Ibid., 337, 342-351
79 Ibid., 337, 342-351.
large subplaza, (Subplaza A), defined by ceremonial and elite structures on all sides, including the sweatbath, and a steep hillside on the southern side. Terraces and stairways surround the space on three sides, accommodating both small and large celebrations, and vertically subdividing it. Within Subplaza A are some of Yaxchilán’s most important ceremonial structures, including the five-terraced pyramid (Structure 18), ball court (Structure 14) labyrinth with its underground passageways (Structure 19), sweatbath (Structure 17/SB 17) and two elite buildings with carved lintels (Structure 12 and Structure 16). The most spatially influential structure is Structure 18, located between Structure 77 and 78 on an elevated platform. These structures are some of the earliest buildings erected and together form the Great Plaza’s only triadic group. 80 The dominant temple, Structure 18, faces the open side, creating and preserving a visual corridor for half of the Great Plaza. Usually buildings within a plaza do not turn away from the internal space, however, Structure 12, 16, and 24 face east, away from this subplaza’s open space. Structure 12 creates a small patio, and Structure 24 faces towards the adjacent subplaza. Tension on the southern side exists because the four buildings built into the hillside are looking down on the plaza space, therefore they are part of it, yet elevated tens of meters above, disconnecting them.

The Great Plaza’s central area is the smallest subplaza, (Subplaza B), despite its high concentration of ritual artifacts, connectivity with the rest of the site, and where SB 10 (Sweatbath Str. 10) is located. Structure 13 and Structure 8 traverse the Great Plaza, bordering Subplazas A and C on both sides, yet still permitting visual and pedestrian flow between it and other parts of the Great Plaza. Corners are formed in both western quadrants, between Structure 23 and Structure 24 on the south and Structure 13 and SB 10 on the north. The buildings surrounding this area have a more cohesive character than Subplaza A: they all face inwards, are elevated on terraces, and have stairways accommodating the elevation change. Elevated upon the southern terrace, the highest terrace, as if guarding over Subplaza B, are four important ritual structures all with elaborately carved lintels spanning the doorways. Centered and surrounded in this space is Stela 1, the site’s most important intersection point between the dominant axis extending from Structure 18 and Structure 33. Between Structure 18 and Stela 1 space is maintained open, free of artifacts and buildings; it is a long gaze framed by peripheral buildings, which gently rises up to Structure 18’s summit, where originally a stela once stood and faced the Great Plaza. However, the converse visual experience occurs between Structure 33 and Stela 1, where the vertical landscape is punctuated by stelae, altars, and terraces, and the incredible grade change, assumed by the Great Stairway. The gaze up to Structure 33, perched at the top and looking down on the plaza, is short, intense, and straight up. Although small, this central space has a high density of elaborate buildings and artifacts, emphasizing its physical and visual connectivity to distant and important buildings.

Adjacent to the Subplaza B is the third subplaza, (Subplaza C), slightly larger than Subplaza B, with structures on all four sides, and two platforms traversing the plaza’s width. Subplaza C is articulated with platforms on three sides and an elevated terrace on the southern side. Integrated into this space are two of the Great Plaza’s oldest buildings, Structure 6 and 7, which have their own unique architectural character, and are the only two buildings with doorways opening to both the river and the plaza. 81 Except for Structure 8, the remaining buildings were constructed almost two hundred years later during Yaxchilán’s peak, and shortly before its decline. 82 When Subplaza C was finally surrounded with buildings on four sides, both Subplazas A and B to its west were already well-established. Subplaza C was the only plaza surrounded by platforms and perhaps it was complimentary to the other subplazas’ activities. It replicates several features of

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80 Ibid., 344.
81 Ibid., 342-351. During Stage 5, Structure 6 and 7 were in the corner and not part of a plaza, however, in Stage 6 they were integrated into the plaza.
82 Ibid., 377, 342-351.
Subplaza B: there is a stela centered in the space, a pedestrian corridor begins, and visual and pedestrian connectivity remains open between the adjacent plazas. The centered stela is part of an axis punctuated with stela and altars, extending from Structure 40 and 41. When the city was inhabited, it is highly likely that the vegetation was cleared from the ravine and visual connectivity was possible between Stela 3 and Structure 40 and 41, the city’s two highest buildings. Similar to Structure 33, views were offered to these elite buildings even though public physical access was most likely prohibited.

At the most southeastern extreme of the Great Plaza lies the fourth subplaza, (Subplaza D), which was also constructed during Yaxchilán’s peak, and therefore, short lived. A noticeable shift in building orientation from the rest of the Great Plaza is apparent, primarily due to undulating curves of the hills on the southern side and impacted by the river’s meander on the north-east. Proceeding eastward, the plaza continuously widens to a width over one hundred meters. Only a few structures have been excavated, including a ball court and platforms, therefore little is known. In comparison to the other plazas, the southern edge is articulated with an elevated terrace and steep hillside. It is not evident where Subplaza D or the Great Plaza ends. Patterns derived from the other subplazas would suggest that the terrain would be filled and leveled, additional buildings would fill in the sides, and important ritual buildings would be constructed on the hilltops overlooking Subplaza D’s space.

The Plaza on the Hill/Ridge

In contrast to the Great Plaza’s flatness, areas with dramatic topographic change were developed along the ridgeline and the truncated hilltops (Figure 2.06). As Miller explains, “Mesoamerican cities grew organically from the core outward, and from the bottom up, with accretions that both expanded the city’s radius and took its highest buildings ever upwards,” which similarly describes how Yaxchilán grew, predominantly filling in the flat Great Plaza and then placing structures on the higher elevations and further away. During Yaxchilán’s middle and late developmental stages, the hillside’s topography was manipulated, converting the natural undulating hillsides into consistent linear edges and severing off the hilltops’ peaks. Analysis enables one to identify the straightened topographic lines near the structures in contrast to those with no structures. Unlike the flat spaces of the plazas and courtyards, in the steep terrain defined spaces are not as apparent. Along the S-curved ridgeline, originating in the Great Plaza’s central area and navigating upwards towards the site’s highest point, there are no four-sided plazas. There is space in front of the buildings, and it is sometimes called a plaza, however it does not have the same experience as other plazas. Structure 33’s hilltop, referred to as the Large Acropolis, is elevated on a steep hilltop with the Great Stairway leading up to it, and further up the ridgeline is the city’s highest elevation where Structure 39, Structure 40, and Structure 41 are found. These structures do not face inwards towards each other. Instead Structure 39 faces away from Structure 40 and Structure 41, which both face the northeastern horizon.

West of the Large Acropolis, one encounters the Small Acropolis, dating to Yaxchilán’s early history when the hillside was modified, hilltop was truncated, and Structure 51 was built on its southern side (Figure 2.02). This structure predates the other buildings completing this elite residential complex by almost 150 years. Although an internal courtyard was formed, only Structure 50 and 51 face it, while the other buildings are oriented and overlook the Great Plaza. Within the elite complex is SB 48, outside the principle courtyard and forming its own with a platform and the backsides of the northern row of buildings. Toward the end of Yaxchilán’s history.

83 Miller, *Maya Art and Architecture*, 25. There were structures placed on the hilltops and ridgeline in the early stages, however, the plaza was where the concentration was until Stage 6 when an immense amount of construction occurred.
84 Garcia Moll, *La arquitectura de Yaxchilán*, 342-351.
85 Ibid., 337, 342-351.
Figure 2.06. Map of Yaxchilán’s ridgeline. Based upon Ian Graham’s 1977 map after John Bolles’ map of 1931.
two other small hilltops were modified and built on, but never achieved significant status. Yaxchilán’s built form is rooted in sacred planning; like the agricultural field, it has a series of four-sided and four-cornered plazas throughout the Great Plaza and in more intimate forms on the truncated hilltops. Along the Usumacinta River, in the flat Great Plaza, is the central ceremonial space and where two sweatbaths are located; the subplazas together serve unique and complimentary functions, each with its unique combination of buildings, artifacts, visual and physical connections, and narrative. SB 17 is located in a large plaza with a ball court, pyramid temple, and lintels and artifacts recording the names of Yaxchilán’s royal ancestors and rulers. In a complimentary role to SB 17, SB 10 is located in a smaller plaza, but heavily decorated with elaborate artifacts relating to the kings’ accessions, unique celestial conjunctions, and warfare rituals. The last sweatbath, SB 48, is in the elite residential complex on the truncated hilltop, accompanied by a platform in its own intimate courtyard. This sweatbath would have served a different range of rituals than the other two, belonging to the elite’s private residence, thus private rituals and ceremonies.

2.3 Yaxchilán’s Sweatbath and the Sample Group

Sweatbath’s Location in the City: Yaxchilán

Each sweatbath is situated within its own unique context, rooted physically and ritually within a specific geographical location, architectural style, cultural time period, and unique set of surrounding buildings informing its role. The ancient sweatbaths are found throughout the Maya cities and across a 3000-year history, most commonly in ceremonial centers, elite residential complexes, and near natural features. Each of Yaxchilán’s sweatbaths belongs to a different plaza or courtyard, expanding the sweatbath’s ritual narrative. SB 10 and SB 17 are located in two of the Great Plaza’s most important subdivisions, and SB 48 is located on the Small Acropolis amongst the elite residential structures. All three sweatbaths were constructed during Stage Six (731 - 771 AD), Yaxchilán’s cultural peak and second to last construction era, occurring shortly before the city’s decline. Therefore, the subdivisions were already generally formed and the sweatbaths were integrated into the existing context, complimenting the overall character of the ceremonial space. The surrounding context, adjacent and nearby buildings, inform each sweatbath’s ritual narrative and function, providing glimpses into which rituals and ceremonies were performed nearby and highlighting the sweatbath’s potential role in rituals.

SB 10 is located in Subplaza B, the Great Plaza’s center, on an L-shaped terrace in the northwest corner, adjacent to Structure 13 and Structure 74 (Figure 2.07, 2.08, 2.09, 2.10). SB 10, together with the two adjacent buildings, appear as one cohesive structure, although archeologists determined they were three distinct structures. Structure 13 is one of the oldest buildings in the Great Plaza, although its lintels and recorded events are of a much later date. SB 10 has five doorways, three have carved hieroglyphic lintels commissioned by Bird Jaguar IV, recording his birth and his accession to the throne, themes associated with the sweatbath. In this subdivided plaza most buildings have carved lintels, stelae, and altars, and the Great Stairway begins its ascent on the southern side. Elevated on the terrace across from SB 10, is Structure 22 and Structure

86 Ibid., 337, 342-351.
87 Tate, Carolyn Elaine, Yaxchilán: the design of a Maya ceremonial city (Austin, Texas: University of Texas Press, 1992), 114.
88 Ibid., 114.
89 Garcia Moll, La arquitectura de Yaxchilán, 95. Maudslay called these three structures House B. Lopez de Llergo and Maler referred to them as the “palace of seven rooms and five carved lintels.” It was Bolles who finally determined there were three buildings sharing the same base but from different time periods. Garcia Moll’s archaeological research further determined the sequence. Structure 13 and Structure 74 were constructed during Stage 3, and Structure 10 was constructed during Stage 6. Structure 10 completed the corner between Structure 13, and built over a demolished western side of Structure 74, which is today Structure 10’s eastern chamber, the sweatbath.
90 Tate, Yaxchilán, 171-173.
91 Ibid., 163-165, 277.
Structure 23 housing three of the most famous Maya lintels depicting a bloodletting scene, the conjuring of a vision serpent, and preparation for warfare. On the backside of SB 10 is a small courtyard, Structure 11 on the opposite side, and a steep descent to the river. Subplaza B is the plaza with the highest density of artifacts and elaborate buildings, and a major intersection point between the Great Plaza and S-curved ridgeline anchored by Stela 1 at its center.

SB 17 is rooted in the Great Plaza’s ceremonial western end, facing the open plaza with an intimate space in front created by Structure 16 (Figure 2.11, 2.12, 2.13, 2.14). On its back is a terraced stairway, sloped earth for about five meters, and then a steep descent to the river. It is in close proximity to the pyramidal “sacred mountain,” (Structure 18), Labyrinth (Structure 19) where shamans and priests are believed to have mediated and communed with the ancestors, ball court (Structure 14), and two structures honoring the ancestors with elaborate lintels depicting bloodletting rituals and royal lineages (Structure 12 and Structure 16).

SB 48 is embedded within the elite residential complex called the Small Acropolis where private rituals for the royal family would have been performed (Figure 2.15, 2.16, 2.17, 2.18, 2.19). It sits on the northwestern side of a private courtyard, with a stairway descending down from the main courtyard, and a platform, perhaps for dancing, approximately six meters away from the sweatbath. Adjacent to the sweatbath’s northwest corner are the walls of a dwelling, and two meters past is an incredibly steep descent. While not part of the main courtyard, the sweatbath is close to it and other important elite residential structures, such as Structure 42 and 44, although they look north and east, turn away from the sweatbath. Their backs create the terracing wall on the sweatbath’s northeast.

Sweatbath’s Location in the City: Sweatbath Sample Group

Yaxchilán’s three sweatbaths are located in plazas near other important ceremonial structures, sacred spaces frequently defined on four sides by other structures, and where important rituals were performed. Throughout the Maya region sweatbaths are near ceremonial centers, ball courts, dance platforms, observatories, in elite residential complexes, and adjacent to important water features. Most commonly the sweatbaths are found in the great ceremonial centers (20/31): Chichen Itza, Copán, Edzna, Ek Balam, Palenque, Piedras Negras, Quiriguá, and Yaxchilán. At Edzna, the sweatbath is part of the perimeter buildings encompassing the main temple, precisely opposite the main temple’s central stairway, and at the end of a sacbe, which means “white way” because they are white sacred raised walkways connecting ancient Maya cities. Interestingly, the small sweatbath entrance is on the outside of the perimeter buildings, so when entering, one would be looking at the main temple. At Piedras Negras half of the sweatbaths are prominently located on the edges of the important plazas and in alignment with temples (Figure 2.20). Structure SB N-1, near the elite residential complex, is in alignment with the ball court and a major temple, even though it is on the opposite side of the plaza. SB P-7, tucked into the corner of a plaza, is adjacent to two large temples, SB R-13 is on an elevated terrace in the oldest ceremonial precinct near the oldest ball court, and SB O-4 is on an elevated terrace adjacent to two important temples. At Uxmal, the sweatbath is in the perimeter of the elevated platform in front of the Governor’s Palace. For the most part these sweatbaths are on the plaza’s perimeter, however, at the

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92 Ibid., 200-210.
93 It is surrounded on the west by Structure 18, 19, 77 and 78, on the south by Structure 27, 28, 29, 30, on the east by Structure 12, 14, 15, 16, 23 and 24 on the east. In the sweatbath’s vicinity, there is a total of 17 structures, 18 lintels, 5 ball court markers, 7 altars and 1 stela.
94 Connection to the river suggests the river and its resources were used: water and rocks were collected and brought up via these stairs. These stairs might have also been part of a processional route between the river and the Great Plaza, used during the sweatbath rituals others occurring in the Great Plaza.
95 Tate, Yaxchilán, 168-170, 177-178.
96 The descent is very steep and somewhat sloped, therefore getting close to the edge is extremely dangerous.
97 Citations for all sweatbaths can be found in Appendix B and the bibliography.
double-walled city of Ek Balam the sweat bath is in the main plaza’s center, aligned with the main temple, and near the observatory, ball court, and several other large unexcavated structures. Its placement in the main plaza, amongst the most sacred structures, underscores the sweat bath’s vital role in rituals.

Sweat baths located near important ritual structures, such as ball courts, dance platforms, and observatories, are part of a larger ceremonial core. At Yaxchilán (2) Piedras Negras (2), and Ek Balam (1) the sweat baths are located near the ball courts, associated with honoring the ancestors and a ritual battle representing the underworld challenges of the Hero Twins. Copán and Yaxchilán also have a sweat bath located near a dance platform, and at Copán and Palenque, the sweat bath is in a communal area where young elite adolescent boys lived communally, learning to perform rituals. At Chichen Itza, one of its three sweat baths is adjacent to the site’s main observatory, the only sweat bath known to be near an observatory.

Many sweat baths are also found in elite residential complexes (11/31). At Tulum a pair of sweat baths flank the bottom stairway of El Castillo, the main temple located within the elite courtyard. Similarly at Uaxactun, the sweat baths are on both sides of the stairway leading up to the elite residential plaza on an elevated terrace. Sweat baths are found within elite residential complexes at Yaxchilán, Palenque, and Piedras Negras, with the later two sweat baths being quite large and linear. Although the elite residential plazas and courtyards are smaller scale than the large ceremonial plazas, they often still form a quadrilateral space.

Because of the sweat bath’s strong associations with caves and water, it is not unusual to find sweat baths near water features where rain gods and fertility gods dwell, and will be discussed in detail in Chapter 3. At Palenque the five sweat baths are near the sacred Otoulm River, flowing through the site, next to the three sacred Cross Group temples and the royal court sweat bath. Palenque’s Queen Bath, removed from the city’s core, is located on a rock shelf along a steep hillside where the Otolum River becomes a waterfall, pooling behind the sweat bath structure and cascading through another series of terraces. The Usumacinta River is off the backside of Yaxchilán’s SB 10 and SB 17 and Piedras Negras’ SB N-1. At Chichen Itza, one sweat bath is on the edge of a cenote where people would purify their offerings and/or themselves before casting them into the cenote as offerings to the rain gods dwelling there (Figure 1.18, 2.21). The Sacrificial Cenote was the destination for one of the largest pilgrimages in the Maya region. Maya from as far away as Honduras would pilgrimage here, asking for fertility and making offerings into this deep sinkhole. At Piedras Negras, two sweat baths on the southeastern side of the site and on the hillside, S-2, and S-4, are believed to have been built near the source of a spring that has since dried up.

Terrace: Yaxchilán

Terraces are used throughout the Maya region to distinguish buildings, temples, stelae, and altars from their surrounding environment, and more importantly, project an elevated status from the profane to sacred. In Part V of the *Popol Vuh*, humans built the gods’ houses on mountaintops, a desirable location which they inhabited. The mountaintop was a high point, a center, and place of duality where gods and humans could communicate, thus why many Maya temples are buildings on tall rising terraces. In urban centers some of the large temples were constructed to chart the sun’s journey through the year, punctuating important moments associated with the agricultural cycle. Dramatic examples of temples symbolizing these sacred mountains

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100 Tedlock, *Popol Vuh*, 208-209.
are at places like Tikal, Chichen Itza, Palenque, and El Mirador.

Buildings, altars, and stelae are on terraces of various heights. Stelae, located on terraces, are only a step or two above the surrounding grade, and although it is a different scale than the mythological mountains, its grade change and centering produce the desired effect. Actual height of the elevation change is irrelevant, seen in the previous discussion of piling stones or mounded earth over a corn seed; the mounding earth above the surrounding area, an elevated presence, is the critical gesture.

Terraces conform to the four-sided and four-cornered model with the sweatbath anchored as its center. At Yaxchilán the sweatbaths are elevated on terraces, varying in height, shape, width, and articulation. Interestingly each terrace ties into an adjacent structure, even in situations where the terraces appear independent. SB 10 is in the elbow portion of the L-shaped terrace, elevated a meter and a half above the plaza’s grade (Figure 2.08). Although Structure 74 is located a half meter below SB 10, they abut on SB 10’s eastern wall. Past the corner and off of SB 10’s southwestern wall, SB 10 and Structure 13 are joined by a passageway. Diverging from the typical sweatbath typology, SB 10’s terrace differs from the others, and is shared with two buildings instead of on its own. The terrace’s front incline has not been excavated and the top layer of stone has been dismantled, but the incline appears to be one continuous set of stairs.

SB 17, centered on three rectangular stepping terraces, has a twelve-meter wide stairway centered on the sweatbath’s entrance, beginning at the plaza’s grade and rising up no more than half a meter to the top of the first terrace and tying into Structure 78’s terrace (Figure 2.12). The middle terrace is rectangular with vertical walls circumscribing its perimeter and the sweatbath centrally located on this terrace, the top terrace encloses the bottom portion of the sweatbath for over a half meter, creating the impression that the structure is smaller than in actuality, and the top terrace, framing the entrance, turns ninety degrees towards the sweatbath, creating a cheek wall. The first terrace is punctuated by the stairway, the second does not have any breaks, and the third splits, emphasizing the sweatbath’s entrance and drain.

SB 48 is asymmetrically situated upon two stacked terraces, and although both structures’ dimensions are almost identical, SB 48’s terrace is one-fourth the total area of SB 17’s (Figure 2.17). On three sides, the terraces appear as one individual wall, however on the front side, the bottom terrace separates from the wall and serves as a step. On one side the terraces abut into the adjacent structure’s (Structure 46) terracing walls and on the other side they abut into a small square terrace, which aligns with the sweatbath’s outer wall. Two small rectangular terraces sit upon the sweatbath’s top terrace and negotiate the small grade change between the stepping walls and the top terrace. SB 48 sits upon the second terrace, but unlike SB 17, no terrace encloses the structure, deemphasizing the appearance of the entrance and the drain.

**Terrace: Sweatbath Sample Group**

Most ancient Maya sweatbaths (20/31) are situated upon terraces, however, about a third (11/31) do not have a terrace and instead are at grade (Figure 2.22). At Chichen Itza, a generally flat site, all three sweatbaths are built at grade, like many of the buildings (Figure 1.18). At Uaxactun the sweatbaths are built into the elevated terrace and flank the sides of a stairway leading up to the elite complex. Similarly, at Quiriguá the sweatbath is at the plaza’s grade, while adjacent buildings are on elevated terraces, and therefore it appears to be built into the terrace. At Piedras Negras two sweatbaths are not on terraces: R-13 is already elevated on a large terrace it shares with other buildings and N-1 is at grade on the edge of the large West Group Plaza. At Palenque, the Queen’s Bath is on a terraced hillside, sharing a flattened shelf with the other buildings.

Sweatbath terraces range from a slight grade change to over twenty meters of change, a
combination of stairs, vertical walls, and angled walls. In some instances the terrace’s entire front side is one continuous stairway, however, in other circumstances, the stairway is centered in the middle. Elevating the sweatbaths on terraces was done for several reasons: to direct water flow, relate spatially with adjacent buildings, adapt to topographic changes, and emphasize ritual status. Architectural drawings from Piedras Negras’ sweatbaths, which are over 1400 years old, have a sloped drain and stairs, intentionally shedding water out of and away from the structure (Figure 1.14).

Most sweatbath terraces (16/20) are no more than three meters above the surrounding grade, and the remaining sweatbaths (4/20) are on terraces five meters or more above their surroundings. All Piedras Negras’ sweatbath are on short terraces, ranging from a pair of steps to ten steps, similar to those at Yaxchilán, and thus a small grade change (Figure 2.24). Copán’s sweatbath is slightly elevated above a dance platform, which is elevated above the plaza. At Ek Balam and Tulum the sweatbaths are elevated on their own terraces no more than half a meter high (Figure 2.23). At Comalcalco the two sweatbaths, most likely symbolic sweatbaths due to their similarities with the Cross Group temples, are elevated upon their own individual terraces, around three meters tall. The terraces are a series of five rising tiers with a pair of stairways straddling the center.

Sweatbaths elevated five meters or more above the surrounding grade are on their own terrace, except for Edzna (Figure 2.25). Edzna is the only sweatbath integrated into perimeter buildings enclosing the main plaza and temple, and therefore it shares its terrace of about two-dozen large stairs negotiating the ceremonial core’s vertical perimeter. A sacbe intersects at an angle, and rising up from its midline are individual half steps facilitating the ascent. The three remaining sweatbaths are Palenque’s Cross Group Temples perched upon a series of intermittent terraces with a prominent stairway rising up the middle, like those of the most important Maya temples. These are all symbolic sweatbaths dedicated to the Triad Deities, and thus most likely why they are given such prominence (Figure 2.26). The tallest terrace is that from the Temple of the Cross, which climbs to over twenty-five meters high (Figure 2.27).

**Structure Size and Features: Yaxchilán**

Maya architecture is influenced by distinct regional styles, building periods, geology, topography, available material, and construction techniques. As a cohesive body of architecture the buildings generally follow several patterns: they are rectangular in shape, are composed of one or two parallel corridors, are single story, have multiple chambers connected through doorways or passageways, have an odd number of doorways on the façade, and have a corbeled roof with a flat capstone arch. The plans and sections from Yaxchilán’s buildings, inclusive of the three sweatbaths, exhibit similar patterns: they are square or rectangular in plan, have four sides and four corners, are single story, have an odd number of doorways, and a corbel vaulted ceiling. However, typical sweatbaths including Yaxchilán SB 17 and SB 48 (excluding SB 10), differ because they are a compact, single chambered room with a short individual doorway, and a central firebox. The typical sweatbath structure reiterates the cosmological quadrilateral world model, a smaller replica than the plaza and the terrace, but larger than the firebox. The four corners are the cosmological corners, the walls are its sides, the firebox is its center, and the doorway is an opening, an aperture into the sacred perimeter.

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101 Contemporary rural sweatbaths are often elevated only a step or two above the surrounding grade so the water drains away from the sweatbath.
103 Structure 73 and 89 have a very similar plan to the sweatbath, however, upon field investigation, it was determined these two structures are not sweatbaths. The doorways were quite wide, and while there were benches inside, there was no evidence of a firebox, fire, or any drain.
104 Bassie-Sweet, *Mayan Sacred Geography and the Creator Deities*, 316. Analogous to the sweatbath, small altars were found atop
SB 17 and SB 48 both adhere to the typical sweatbath typology, however SB 10 does not. In addition to the characteristics already mentioned, SB 17 and SB 48 are of average size externally and internally, the facades’ lengths are slightly larger than their widths, they accommodate about four to six adults lying down on the benches, have a firebox located in its center or against the back wall, and the drain, bisecting the interior space, is the width of the entrance.\textsuperscript{105} The benches, occupying more than half of the total interior area, touch the four internal corners and sides. The stacked stone walls average about one meter in thickness, more than required to hold the roof, but a typical width of Maya buildings with average ceiling heights.

SB 10 deviates from the typical sweatbath form due to the structure not being originally built as a sweatbath, and it being later retrofitted. Instead it follows more closely that of a multi-chambered building, with two separate chambers of normal ceiling heights, divided by a solid wall. The walls are of differing thicknesses, thinner on the lengths and thicker in between the two chambers where it abuts to the adjacent structure. Its external length is three times longer than the typical sweatbath, yet the sweatbath chamber is of average size and proportion. Both the firebox and benches are asymmetrical; the firebox is located on the outside wall, almost in the corner, and the benches are along two consecutive walls occupying more than half of the chamber.

\textit{Structure Size and Features: Sweatbath Sample Group}

The ancient Maya sweatbaths range in size from a simple compact sweatbath chamber to an elaborate structure of eight rooms in addition to the sweatbathing chamber. Surface area for the entire structure ranges between 20 to 200 square meters, however, average size is 80 to 150 square meters. The smallest structure is a single chambered structure at Tikal with 20 square meters of surface area. Yaxchilán’s two typical sweatbaths are only slightly larger, ranging between 31-35 square meters, and SB 10 is average size at 96 square meters, including both chambers. Piedras Negras’ SB P-7 is the largest sweatbath structure, 200 square meters, with four large rooms in addition to the sweatbath chamber (Figure 1.13).\textsuperscript{106} In analyzing total interior area for solely the sweatbath chamber the averages are 10 and 20 square meters. The smallest sweat chamber is again at Tikal, measuring four square meters, and interestingly, the second smallest sweatbath chamber is Piedras Negras SB P-7 measuring roughly seven square meters, even though it is the largest sweatbath structure. All three of Yaxchilán’s sweatbaths are average size, ranging between 15 and 19 square meters. The largest sweatbath chamber is Palenque’s palace sweatbath at 28 square meters, which does not conform to the typical sweatbath typology and was most likely retrofitted.

\textit{The Firebox: Yaxchilán}

The Maya cosmological center is represented by many things: a mountaintop, a cave, a plaza, mounded earth, three hearthstones, fire, human heart, and a navel.\textsuperscript{107} The Maya believed the center was the place of creation, which arose from death or sacrifice, and fire was a cosmic agent of destruction and regeneration. Fields are burned to remove excess vegetation and the ash enriches the soil, bringing forth new abundant crops.\textsuperscript{108} According to Taube, “fire was the medium by which individuals conjured the gods through the offerings of blood, copal, and other precious substances. These fire rites involved a ritual process best described as \textit{focusing}, a term yearbearing mountains in the sacred Maya landscape of Guatemala and described as, ”four slabs of rock arranged like a little house that opened at the front...a cave-like house.” Yearbearing mountains are four sacred directional mountains and where rituals are performed for the deities.

\textsuperscript{105} Structure 17’s external dimensions are 6.8 m x 5.4 m and the internal are 5.2 m x 3.7 m. St 48 external dimensions are 6.37 m x 4.92 m and the internal dimensions are 4.72 m x 3.2 m. There is less than half a meter difference in their widths and lengths, with Structure 48 being slightly larger.

\textsuperscript{106} The next two largest are Piedras Negras O-4 at 179 square meters and Palenque’s Queen Baths sweatbath at 178 square meters.

\textsuperscript{107} Girard, \textit{Los Chortis ante el problema maya}, 570.

\textsuperscript{108} Ibid., 635.
derived from the Latin *focus*, meaning ‘hearth.’ During the ceremony, there was a focusing of scale and attention from the temple to the place of fire itself, which became the specific point of communication with the divine.”¹⁰⁹ The sweatbath’s firebox is its central focal point, the most intimate cosmological detail, reinforced by the structure and terrace, and where the fiery rocks are placed and water is poured, a transformative hearth that produces the life-changing vapor. The firebox activates the sweatbath and conjures a watery interface, a portal for communing with the supernatural realm.

The sweatbath’s firebox typically has four sides and four corners, is square or rectangular in form, enclosed by a stacked stone wall, has an opening on the front, and a stone over top. The fireboxes at Yaxchilán are not completely intact, but still provide clues about their form. SB 17’s firebox has an opening like the doorway but smaller, created from a lintel spanning over two vertical rocks, most likely integrated into a stone enclosure only partially existing today, but visible by the edge of vertical rocks (Figure 2.14). Unfortunately, SB 48 does not have any firebox lintel present, but similar to SB 17, the stone at the end of the drain is a large stone, below where the spanning lintel would be placed (Figure 2.18). The fireboxes in both SB 17 and SB 48 are on the same level as the bench, centered on the doorway, and elevated above the drain. In both sweatbaths stelae-like vertical rocks of fine grade limestone were embedded in the firebox, atypical of sweatbaths, and not known to be found elsewhere.¹¹⁰ In SB 17 stelae-like pieces are standing up against the back wall, however in the case of SB 48, they seem to have been broken off, now rising up only inches above the bench level.¹¹¹ It is unknown what they meant, but due to their fine grade perhaps they were sacred, like the ancestors, which regular stelae characterize.

SB 10 diverges from the typical sweatbath typology; its firebox is in the original doorway opening as a vertical square, instead of the horizontal, appearing personified with a nose, two eyes, and a mouth (Figure 2.09). Two niches recessed into the blackened wall appear like its eyes, below is a flat stone spanning the distance of the opening, and underneath the stone in the middle, an opening is visible where rocks have been pushed in, perhaps where the water flowed out. This hole appears like a mouth and the stones between the eyes give the impression of a nose. Above the firebox is a carved lintel recording a fire dedication ceremony when the building was dedicated.¹¹²

*Firebox: Sweatbath Sample Group*

Most sweatbath fireboxes are centered on the doorway, physically centered in the sweatbath chamber or slightly towards the back, and positioned at the end of the drain when present. The firebox’s elevation varies ranging from recessed into the floor, at grade, and above grade at the benches’ elevation. At several sites such as Tikal, Edzna, and Yaxchilán the fireboxes are not fully enclosed because parts were never found in excavation or it was designed differently (Figure 2.28, 2.29). Evidence from Piedras Negras and Chichen Itza shows the fireboxes completely enclosed with only an opening on the front (Figure 1.13, 1.14, 2.30, 2.31, 2.32, 2.33).

Iterations of the cosmos at various scales is fundamental to the sweatbath’s physical rooting. Projecting outside the sweatbath’s wall to the scale of the city, sweatbaths were typically found in the plazas, the ceremonial space of ancient sites, near sacred buildings, and courtyards in elite residential complexes. Although small in comparison to others, its consistent presence in the ritual landscape underlines its ritual importance. The sweatbaths were in direct relation to


¹¹¹ To the Maya the stones placed inside the firebox represent the ancestors, and likewise at a larger scale, the bathers bodies are steamed and heated up inside the sweatbath.

¹¹² Tate, 163-165. This lintel is one in a triple lintel series. The lintel over the doorway commemorates the accession to the throne of Bird Jaguar IV, and the one spanning the doorway over the adjacent chamber commemorates Bird Jaguar IV’s birth.
buildings central to the ritual celebrations and accessible in private for elite members of the royal family. Size and exact configurations vary with each sweatbath, however, the repeated pattern of the cosmos is visible at the scale of the terrace, structure, and firebox. The most intimates scale of the firebox, the central sacred space, still follows the cosmological model; it is the transformative hearth of creation, and in some sweatbaths, the firebox is a miniature replica of the sweatbath itself, completely enclosed with one opening on front.

**Palenque’s Cross Group Temples as the Cosmos**

Palenque’s Cross Group temples are three symbolic sweatbaths that do not have typical sweatbath features such as the drain, benches, firebox, or small doorways like functional sweatbaths, yet the hieroglyphic texts call them *pibnaah*, a sweatbath.¹¹³ The three structures’ plans resemble each other with a rectangular form, an inner shrine on the back wall, elaborate hieroglyphic texts and tablets inside, three openings on the front facade, and an elaborate roofcomb on the structure’s top. Replicating the cosmos manifests in the Cross Group temples in their arrangement and tablets’ images. Nested within Palenque’s ceremonial core, the three Cross Group temples, a triadic group, are arranged around their own four-sided ceremonial plaza with one temple on three of the plaza’s four sides, each facing inwards, and the dominant temple, the Temple of the Cross, facing the open side.¹¹⁴ At the plaza’s center is a small, square radial platform measuring less than a meter high, and stairs on all four sides, another reiteration of the four-sided world. Stuart and Stuart believe this platform was the “locus of rituals” during celebrations including a major period ending celebration (9.13.0.0.0) when these temples were dedicated in 692 AD.¹¹⁵ Thus this platform’s center would have been an anchoring force where humans performed rituals, a projection out to the three sacred temples and reflection back on this platform emphasizing its role as center of the world.

Furthermore, the four-sided four-cornered world is present in the tablets’ central images. Centered in the Temple of the Cross tablet’s image is the sacred world tree, appearing like a cross extending to the four sides. The world tree arises out of a “sacred offering bowl...the symbolic womb of the cosmic alligator that represents the surface of the earth or the nocturnal starry sky,” sitting atop a skull, the “animate seed that gives rise to sacred trees and also to maize.”¹¹⁶ Perched on top of the sacred world tree is a supernatural bird indicating the world tree as an *axis mundi*, where supernatural powers are transmitted.¹¹⁷ The horizontal projections extend outwards to the young K’inich Kan Bahlam on the left and on the right an older K’inich Kan Bahlam on his inauguration day.¹¹⁸ This sacred tree is adorned with flower blossoms and jewels and is associated with the rising sun on the eastern horizon, symbolic of ancestral resurrection.¹¹⁹ Centered in the Temple of the Foliated Cross tablet’s image is the jeweled maize plant with corncob shaped human heads emerging from the plant’s foliage.¹²⁰ While not as explicit as the sacred world tree, the maize plant is extending to the four quadrants. It is arising out of the basal head, which the hieroglyphs read “precious sea,” the supernatural bird is again perched on top, and the two corn cob heads enveloped in the foliage are extending outwards towards the king K’inich Kan Bahlam on the left, and the younger K’inich Kan Bahlam on the right.¹²¹ Thus the four extensions in these two images vertically connect the multi-layered worlds and horizontally connect time and his-

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¹¹⁶ Ibid., 198.
¹¹⁷ Ibid., 198.
¹¹⁸ Ibid., 196-197.
¹¹⁹ Ibid. 198.
¹²⁰ Ibid., 199-201.
¹²¹ Ibid, 199-201.
Figure 2.07. Plan and section of ancient Maya sweatbath, Yaxchilán SB 10 [fair use]
Figure 2.08. Yaxchilán SB 10, structure and terrace

Figure 2.09. Yaxchilán SB 10, interior, firebox, partial opening, and entrance

Figure 2.10. Yaxchilán SB 10, interior and benches
Figure 2.11. Plan and section of ancient Maya sweatbath, Yaxchilán SB 17 [fair use]
Figure 2.12. Yaxchilán SB 17, structure and terrace

Figure 2.13. Yaxchilán SB 17 structure and doorway

Figure 2.14. Yaxchilán SB 17 interior and firebox
Figure 2.15. Plan and section, Yaxchilán SB 48

Figure 2.16. Plan and section, Yaxchilán SB 48
Figure 2.17. Yaxchilán SB 48, structure and terrace

Figure 2.18. Yaxchilán SB 48, interior and firebox

Figure 2.19. Yaxchilán SB 48, backside and steep descent
Figure 2.20. Map of Piedras Negras with ceremonial and royal court sweatbaths. Based upon map from University of Pennsylvania Museum.
Figure 2.21. Map of Chichen Itza with sweatbath locations [used with permission from Carnegie Institute]
Figure 2.22. Terrace, no terrace, Tikal

Figure 2.23. Terrace, short terrace, Ek Balam

Figure 2.24. Terrace, short terrace, Piedras Negras P-7, [used with permission from FAMSII]
Figure 2.25. Terrace, tall terrace, Edzna

Figure 2.26. Terrace, tall terrace, Palenque, Temple of the Foliated Cross

Figure 2.27. Terrace, tall terrace, Palenque, Temple of the Cross
Figure 2.28. Firebox, Tikal

Figure 2.29. Firebox, Edzna

Figure 2.30. Plan and section of firebox, Chichen Itza 3E3 [used with permission from Carnegie Institute]
Figure 2.31. Firebox, Palenque, Queen’s Bath

Figure 2.32. Firebox, Piedras Negras N-1
[used with permission from FAMSI]

Figure 2.33. Firebox, Piedras Negras J-17
[used with permission from FAMSI]
tory through the central image of the world tree and maize plant. Centered in the third image, the Temple of the Sun’s tablet, is a shield with two spears, emphasizing warfare and extending diagonally to the corners, not the sides like the two previous images. The spears and shield are “supported on the backs of two hunched underworld deities,” hieroglyphic texts are above the shield, and the spears point above the head and towards the feet of the young and old K’inch Kan Bahlam.\footnote{Ibid., 209.}

The Cross Group temples together represent the four-sided and four-cornered world with a sacred center. The platform is the plaza’s center and simultaneously its own four-sided and four-cornered world with its own center activated by the presence of humans performing rituals. Each tablet’s image reinforces the importance of the cosmological model through centering sacred objects such as the world tree, the jeweled maize plant, and the warfare shield, that extend out to the four corners or four sides. Extensions outward to the four corners continuously anchor and give meaning to the center.

\section*{2.4 Duality}

\textit{Popol Vuh and the Body}

Crucial to Maya worldmaking, as has been explained throughout this chapter, is the replication of the quadripartite model, divisible into two halves. The Maya believed two complementary forces existed for all aspects of life, gods-humans, man-woman, sun-moon, living-dead, sacrifice-regeneration, and hot-cold, which are “complementary rather than opposed, interpenetrating rather than mutually exclusive.”\footnote{Tedlock, \textit{Popol Vuh}, 59.} Pairing forces such as the sun, representing man, and the moon, representing the woman, unite together, and furthermore, each entity is also divisible, such as masculine moon, the full moon, and feminine moon being the other moon phases.\footnote{Girard, \textit{Los Chortis ante el problema maya}, 439, 466-467.} Likewise, the moon, symbolic of fertility and regeneration, also brought diseases and illness; it was beneficial and harmful. Maya life, intimately tied to agriculture, shifts and fluctuations between the rainy season and the wet season, and as mentioned, divides the solar year into two 180-day cycles. It was a collective act between humans and the gods, and according to Tedlock, “For Mayans, the presence of a divine dimension in narratives of human affairs is not an imperfection but a necessity, and it is balanced by a necessary human dimension in narratives of the divine affairs.”\footnote{Ibid., 59.} While not known if architecture was conceived of as complimentary forces, such as a left and right side, bad or good, duality as two halves is present in the typical sweatbath plan, section, and elevation when bisected along the midline.

Language in the \textit{Popol Vuh} reinforces duality, the pairing of complimentary forces, throughout and in the narrative’s structure. Opening the narrative, the passage at the beginning of this chapter from the \textit{Popol Vuh} pairs forces, actions, and people: siding and cornering, measuring and staking, halving and stretching, sky and earth, Maker and Modeler, mother and father, breath and heart, and so on. Each union of halves creates a whole, a balance of complimentary forces. The journey of the Hero Twins demonstrates the triumph over the underworld gods, a “strongly dualistic theme seen in the eternal struggle-between the powers of the good and powers of the evil-over the destiny of many. The benevolent forces bringing thunder, lightning, and rain, set the corn to fruit to ensure plenty. The malevolent powers, bringing drought, hurricanes, and war, ruin the corn and bring famine, misery, death, and destruction.”\footnote{Sharer, \textit{The Ancient Maya}, 522.} Duality contributes to the life cycle’s perpetuation, through destruction comes rebirth, and birth always precedes death.
Duality, present in the Popol Vuh’s organizational structure, is divided into five chapters, the first four paired with complimentary narratives.\(^{127}\) In Part One the great gods come together to create man, and three different times they fail, and in Parts Two and Three, the Hero Twins journey to the underworld encountering a series of challenges and obstacles they overcome, not by brute force, but by wit. In Part Four, the gods are finally successful at creation, creating humans from cornmeal and water. Part One and Four are complimentary narratives of failure and success in the creation process, and Part Two and Three describe death, regeneration, and life’s challenges.

The Maya considered the body a “nexus and unifying structure of the universe,” a tangible expression of four with two halves, like the cosmological diagram, its four limbs as four corners and two mirroring halves along its vertical midline.\(^{128}\) To the Maya the left side of the body, typically non-dominant, is considered small and weak, evident in Classic Maya imagery as things and people of lower status are on the left.\(^{129}\) The right side is large and powerful and the Maya word for right is associated with “straight” and “right.”\(^{130}\) The left hand is ill-behaved, graceless, crazy, and clumsy, and the right hand was considered straight, correct, fine, pure, decorated and adorned. Complimentary forces brought balance to the body, each side physically similar with unique characteristics. In addition, the body is vertically divisible through the location of its tripartite soul, in the head, the heart, and the liver.\(^{131}\)

**Sweatbath Structure’s Duality: Yaxchilán**

Like the cosmological diagram and relating to the human body, duality is manifested in typical Maya sweat bath plans, sections, and elevations. Yaxchilán’s SB 17 and SB 48’s plans are symmetrically divisible into two equal parts along the midline of the doorway: the drain, firebox, doorway lintel, and walls are divided in half, and the benches, already separated by the drain, are two halves (Figure 2.11, 2.15, 2.16). In plan, two identical parts mirror each other, only when the section cuts along the midline. On the bottom the drain cuts into the earth and is where water collects and flows out of the sweatbath, like the watery underworld. The benches and walls are the middleworld, the roof is the dome of the heavens, the upperworld, and the firebox is the axis mundi, connecting them all. Tripartite designs are commonly found in stelae, important ritual buildings, plates, incense burners, and murals; the most important is the cosmic tree divided into three parts: the branches in the heavens, the trunk on earth, and the roots in the underworld. Each cosmic tree is considered a portal, opening communication between the multi-layered world. The sweatbath’s walls, connecting to the roof (upperworld) and perimeter location, resemble the Bacabs described in The Book of Chilam Balam of Chumayel, the four brothers God created to hold up the sky, one in each of the world’s quadrants.\(^{132}\)

SB 10 is not symmetrical along the midline nor is it vertically distinct in the same way. SB 10 was not originally built to be a sweatbath, but later retrofitted, evident in the stone patterns of the partially closed doorway, the firebox (Figure 2.09). A midline through the doorway does not divide the space in two equal parts, nor a midline through the buttresses, or perpendicular to either of these. The eastern side is significantly different from the western side, and no midline creates two distinct parts mirroring each other. Therefore, instead of two halves, four unique quadrants exist.

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\(^{130}\) Ibid., 36.

\(^{131}\) Ibid., 53.

Sweatbath Structure Duality: Sweatbath Sample Group

Symmetry is characteristic of the ancient Maya sweatbath’s plan and section; nine out of ten sweatbaths (27/31) are symmetrical. When drains are present, the sweatbath is always symmetrical, yet several symmetrical sweatbaths do not have drains, such as Palenque’s Cross Group temples, those at Uaxcatun, and Comalcalco. Thus, while the drain is an identifiable feature, it is not definitive if the structure is a sweatbath or not. Piedras Negras’ eight sweatbaths have additional rooms encompassing the sweatchamber, and symmetry is always maintained. In plan, the symmetrical sweatbath’s firebox is centered on the doorway and is the visual center, although not always its precise physical center. Sections along its midline reveal a tripartite division, as seen in SB 17 and SB 48, and the enclosed firebox appears as a miniature sweatbath, reiterating the nesting effect and replication of the cosmological model at different scales.

Asymmetrical sweatbaths, like Yaxchilán SB 10, cannot be divided into two equal halves: the plans, drains, and fireboxes are all unique to the particular structure. At Quiriguá the sweatbath is in the corner of a multi-passageway building, with no definite sweatbath chamber, and the firebox is uniquely located underneath the bench. At Palenque the palace sweatbath consists of three linear and separate chambers, the drain, heat room, and sweat chamber, and doorways on the long side. The asymmetrical sweatbaths appear to have adapted to prior conditions and were retrofitted to an already present structure or configuration, thus the atypical features.

Doorway: Yaxchilán’s Sweatbaths

Maya buildings usually have odd numbered doorways, with the midline centered on the central doorway, and the sweatbath adheres to this pattern. Many sweatbath structures have more than one doorway for additional rooms for resting and changing, however, the chamber itself always has one doorway. The body has one mouth, straddling the body’s midline, and analogously the sweatbath chamber has one door straddling its midline. Maya doorways are typically two meters tall, one meter wide, and spanned with a smooth or carved lintel, however the sweatbath doorways are generally half the size, around a meter high, a half a meter wide, and spanned with a smooth lintel. SB 17 and SB 48’s doorways are average height, approximately a meter high, and SB 17’s doorway has a smooth megalithic lintel spanning its doorway and SB 48 has no lintel in situ (Figure 2.13, 2.17). SB 17 and SB 48’s façades are divisible along the doorway’s midline, each half reflecting the other; external symmetry reflects internal symmetry. SB 10 deviates again from the norm, and its doorways are taller than average, at two meters high; there are five openings, three have carved hieroglyphic lintels, two over the sweatbath’s openings, one is passible and the other is partially filled in with rocks (Figure 2.08, 2.09). The structure’s central doorway does not serve as a midline, and neither does a line centered between the sweatbath chamber’s two openings. Its external asymmetry reflects its internal asymmetry.

SB 17 and SB 48’s plan and elevation interestingly reflect each other: in elevation the doorway’s lintel resembles the firebox’s lintel in plan and the doorway resembles the drain, both anchored in the middle of the four-sided and four-cornered world. In elevation, SB 17’s vertical elements are also replicated at three different scales: the firebox lintel, the doorway lintel, and what would have been the sweatbath’s cornice. Each horizontal element gets larger as it moves further outward from the building’s center, and conversely each threshold becomes more specific and sacred as it approaches the center.

134 Tate, Yaxchilán. At Yaxchilán, almost all facades have three front entranceways, generally within the central 50 percent of the façade.
135 There are many lintels in the surrounding area that are currently being used as makeshift benches. It is possible one is the original lintel for Structure 48.
Figure 2.34. Doorway, Palenque, Queen's Bath

Figure 2.35. Doorway, Palenque, Temple of the Sun

Figure 2.36. Doorway, Chichen Itza SB C315
Doorway: Sweatbath Sample Group

Sweatbath structures have different numbers of doorways, however, the sweatbath chamber has one doorway, except at Palenque’s royal court. Over two-fifths (14/31) of the sweatbath structures have one doorway, two-fifths (11/31) have three doorways, about one-fifth (4/31) have five doorways, and two sweatbaths have two doorways (Figure 2.34, 2.35, 2.36). The sweatbaths with five doorways are the elite residential multi-chambered sweatbaths at Piedras Negras and the ceremonial sweatbath at Chichen Itza. Most doorways’ heights and widths are similar to SB 17 and SB 48, not exceeding 1.5 meters high and a meter wide, with a smooth lintel spanning the threshold. In the northern Yucatan, at Chichen Itza and Edzna, the doorways are particularly small and square shaped, no more than two-thirds a meter high and wide, causing one to crawl into the sweatbath chamber on one’s stomach (Figure 1.17, 1.18). Five sweatbaths have very large doorways over 2.5 meters wide, the symbolic sweatbaths at Palenque and Comalcalco, therefore no need to physically retain heat (Figure 2.35).

The quadripartite design and duality is essential to Maya culture, mythology, architecture, and the human body, and is manifested in the sweatbath’s design. Symmetry and duality are present in the typical sweatbath typology, however, in situations where the sweatbaths appear to be retrofitted to a previous space, they do not have many typical features. The outside and inside reflect each other, thus a symmetrical outside is a symmetrical inside, and an asymmetrical outside is an asymmetrical inside. The sweatbath’s vertical scale demonstrates the tripartite divisions shown in elevations and sections: condensed water in the drain represents the underworld, the benches where the bathers lie during the ritual is the terrestrial realm, and ceiling and roof is the upperworld. Collectively, the sweatbath structure and its architectural elements reflect the cosmological model in plan, elevation, and section.

Conclusion

As a manifestation of the symbolic womb of Mother Earth, the sweatbath is physically rooted and impresses into the earth in the Maya ceremonial landscape. Its general form, materials, construction, and architectural language reflect its Maya roots, but its small size, firebox, benches, and low doorway distinguish it from the others as a sweatbath. Although small and overlooked, the sweatbath is physically rooted near prominent temples, ball courts, observatories, elite residential complexes, and sacred water features. It is located where public and private rituals occurred, emphasizing its ritual importance. Projecting into the landscape and to surrounding buildings helps to construct ritual narratives and celebrations the sweatbath belonged to, that with each reenactment, imbued the landscape with meaning and significance, adding to its cultural sediment.

Reiterating the cosmos was imperative for sanctifying space, distinguishing the sacred from the profane, and embedding it with meaning. As illustrated in the realm of agriculture, to the Maya every action and gesture is weighted with meaning, thus the priest in the temple is also the farmer in the field. Physically the land is inscribed with four corners and a sacred center through the body’s gestures, ritual processions, and working the earth, which in each iteration the sides are anchored by the central force, for example by a temple, navel, plaza, altar, or firebox. This was essential to the sweatbath’s physical rooting, accentuating its notion of creation, hence its quadripartite design, center, and tripartite division in the vertical plane, with each element suffused with meaning and significance. The sweatbath as the cosmos is nested within larger cosmological models, such as the plaza and terrace, and houses smaller models within like the firebox. The four-sided and four-cornered design and sacred center connects the sweatbath not only to its unique place in the world, but to the universal, as it converts into an axis mundi, connecting the three layered world. Thresholds in each sacred boundary, indicated by lintels spanning the
doorway and firebox, provide horizontal access into each sacred realm, and passing inward to the more sacred realm is distinct from passing outward towards the more profane.
Investigating a site’s palimpsest reveals a landscape’s history and evolution; it gives meaning to a building’s location, construction of space, hierarchy of decisions, and cultural and historical forces, which influenced the present form. Joseph Rykwert explains, “A human mark or trace made on the terrain may look to outsiders like an accident, yet for those who make it the distinction between the mark and what is around it is obvious and essential.” Patterns of physical transformations made to the landscape emerge, and like language within a given culture, patterns convey specific meanings, influence thinking and organizing, and mold how people apprehend their world. The Maya used natural landscape features, conceived of as animated forces, to organize their cities, serve as landmarks, influence building construction, location, and orientations, and guarantee interaction with supernatural forces.

Sections of Yaxchilán’s three sweatbaths reveal two patterns accentuating natural features: the sweatbaths are near topographic changes, even when on a flat plaza and are in close proximity to water features. Two of Yaxchilán’s sweatbaths, SB 10 and SB 17, are in the Great Plaza near a topographic change descending down to the Usumacinta River with stairs physically connecting them to the river’s banks (Figure 3.01, 3.02). SB 10 is on a terrace in the Great Plaza’s flat terrain between a descent to the river and a steep hillside, and is the sweatbath farthest from a topographic change at ten meters, buffered by Structure 11 and a small courtyard. SB 17 is similarly located on a terrace in the Great Plaza between the descent to the river and a steep hillside, however the topography drops twenty meters down to the river directly off the back of the

2 Ibid., 9.
4 A topographic change is a transition of the physical earth from flat to inclined, and includes a land’s inherent condition or manmade modifications to the earth, such as a truncating a hilltop or raising a plaza. Topographic changes do not include architectural terraces, which elevate a building above the surrounding grade. Many sweatbaths are located both on a terrace and near a topographic change.
structure. SB 48 is in a flat plaza on the edge of a truncated hilltop facing a tall stairway leading to another larger plaza with steep descents plunging over thirty meters into a ravine immediately off the structure’s back and side (Figure 3.03). SB 48 is removed from the river, but the ravine below collects the rainfall, which later flows into it. All three sweatbaths have steep topographic changes off the back, while the land rises up in front, naturally for the two sweatbaths in the Great Plaza and artificially as a stairway near SB 48.

While significant height change occurs front to back, side-to-side is relatively even, except SB 48. Lateral sections perpendicular to the midline sections and parallel with the sweatbath’s façade illustrate flatness, typical of Maya plazas (Figure 3.04). SB 10’s section illustrates its location upon a terrace in a flat portion of the Great Plaza, and interestingly, SB 17 is situated at the only point where a nominal artificial grade change occurs in the Great Plaza, thus an intersection of a natural steep descent down to the river and a subtly artificial ascent up onto a terrace. Deviating from the flatness, SB 48’s perpendicular section reveals a steep drop off one side and a terracing wall of buildings on the other. Overall the sections illustrate topographic variations in relation to the sweatbaths: predominant flat terrain on the sweatbath’s sides, although some exhibit topographic change, and descents and ascents off the front and back. All buildings in the Great Plaza are in proximity to the river, due to the narrow shelf where they are sited, and both SB 10 and SB 17 are on the northern side closest to the Usumacinta River. Close proximity to the river is not likely a coincidence, but believed to be rather intentional. Stairs on SB 17’s backside lead to the river, suggesting, at a minimum, a physical connection to it for functional purposes, and further plausible is a symbolic connection sweatbath’s have with caves (ch’een), bodies of water, and the Maya interpretation of water as a portal or transitional threshold between worlds.

Investigated in this chapter is the sweatbath’s projection into the landscape and the discovery of its dynamic relationship between topography and water. Water is rooted in Maya mythology, has a range of symbolic meanings, seasonal shifts physically transforming earth, and its presence influenced Maya settlements and the built world. This chapter describes how Maya cities accommodated excess water, survived with little rainfall, and in particular, the Usumacinta River’s influence on Yaxchilán’s development. The third section explores Yaxchilán’s three sweatbaths’ landscapes and connections with topography and water features, followed by accessing water and topographic conditions at twenty-eight additional sweatbaths. Lastly, Palenque and Chichen Itza, both with unique natural features and ritual narratives, are surveyed in-depth seeking to enhance the scope of the sweatbath’s physically and symbolically layered landscape.

3.1 Water in Maya Culture

Water was vital to creation in Maya mythology and many water features are infused with symbolic meaning. Water was terrestrial, filling the insides of mountains, flowing out of earth from caves, coursing in underground networks of rivers, and rising out of earth in the form of mist and clouds. Yucatan Maya today compare water to the body’s blood, “the water in the earth is like the blood in your veins,” and it is the, “cosmic blood of the earth.”6 In the Popol Vuh the first mountain emerged out of the primordial waters, “The earth was formed first, the mountain-plain. The channels of water were separated; their branches wound their ways among the mountains. The waters were divided when the great mountains appeared.”7 Following the mountains, all living things were created, arising out of the primordial sea; it was a life giving and sustaining agent,
Figure 3.01 Midline Section of Yaxchilán SB 10 to river

Figure 3.02 Midline Section of Yaxchilán SB 17 to river

Figure 3.03 Midline Section of Yaxchilán SB 48

Figure 3.04 Section of Yaxchilán’s Great Plaza
Figure 3.05 Dresden Codex, p 74, crocodile flooding the earth [used with permission from FAMSII]
yet equally disastrous, flooding the earth with each failure in the creation of humans, cleansing
the unwanted and impure. A depiction of the earth’s flood and destruction of insufficiently made
humans is believed by some scholars to be illustrated in the Dresden Codex (p 74); a crocodile
with water flowing out of its mouth is set on a chocolate-colored background Thompson believes
to be heavy resin falling from the sky described in the Popol Vuh and accompanied with hiero-
glyphic texts associated with destruction (Figure 3.05).8 Contextualizing this image and its place-
ment in the overall sequence, “proceeding pages treating rain and drought,” combined with the
illustration of Goddess O pouring water out a jar, another god below pointing two arrows and a
long staff downward, and a maize seed glyph, Thompson proposes might “symbolize the annual
start of the rainy season.”9 The shifting seasons were integral to agriculture, the heart of Maya
life, and transformative, bringing earth to life after a period of dormancy.

The Maya quadrilateral world, bound on all sides by fluid waters, is represented by a
crocodile, floating in water with his four limbs extended toward the corners and spikes on his
back represent mountain ranges. Like the crocodile, the physical land inhabited by the Maya is
surrounded by water on all sides: the Gulf of México, Caribbean Sea, and Pacific Ocean. Water
surrounding their world, rolling onto the beaches, falling upon the earth, coursing through the
rivers, and bubbling out of the springs was viewed as one dynamic hydrological system.10 The
ancient Maya made no distinctions between saltwater and freshwater; aquatic animals and plants
are depicted in both types of water, water lilies grow in saline water and sharks navigate inland
rivers.11

Water Etymology

Montgomery’s Dictionary of Maya Hieroglyphs utilizes three Maya words for water: naab’
(nahb), ha’, and way.12 Ha’ is inclusive of water bodies and does not distinguish between spring,
lake, or river. The ha’ glyphs are represented by water lily blossoms, indicating fresh water, the
only place they can grow.13 Vital to water’s meaning is the notion of origin, and ha’ is associated
with the 260-day ritual calendar’s first day, and parallels other calendars’ “crocodile,” day, thus
commencing with the primordial water beast.14 Likewise, ha’ in combination with “fire” means
“fiery pool” which Stuart believes is the place where the sun rises out of the red Caribbean sea.15
Ha’ is connected to water sources as a city’s founding feature and embedded in names such as
Lakam Ha’ “Wide Waters” (Palenque) and Yaxha’ “green blue waters.”16

The naab’ (nahb) glyphs imply water, sea, plaza, and water lily and are illustrated in two
predominant ways.17 The first is a quincunx with a center circle, four lines radiating outward to
the corners, and a hollow dot inside each quadrant, a motif used to render carapaces of turtles
and watery lily leaves, and the second illustration is a fish nibbling flowers and floating leaves.18
While the origins of naab’ have not been determined, it is most accepted to mean “body of water,”

8 Thompson, J.E.S., A Commentary on the Dresden Codex: A Maya Hieroglyphic Book (Philadelphia: American Philosophical Society,
1972), 89.
9 Taube, “Where the earth and sky meet,” 205-206; Thompson, A Commentary on the Dresden Codex, 89. Goddess O is a moon god-
dess, and the moon is associated with agricultural cycle to be described in Chapter 4 and 5.
10 Houston, Stephen, “Living waters and wondrous beasts,” in Fiery Pool: The Maya and the Mythic Sea, edited by Daniel Finamore
and Stephen Houston (New Haven: Yale University Press, 2010), 68.
12 There are more than eight glyphs, although the dictionary provided only eight. Each glyph has its own variations throughout
time and region.
with crosshatching that darkens a semi-circular area.
14 Houston, “Living waters and wondrous beasts,” 73.
15 Ibid., 73.
16 Ibid., 73.
17 Montgomery, Dictionary of Maya hieroglyphs, 178-179.
18 Ibid., 179.
inclusive of pooling liquids, such as a captive’s blood, and k’an naab, “precious pool,” is found on a vase for chocolate, a sacred Maya drink.  

The third interpretation of water is way describing water’s spiritual aspects associated with a hole, entrance, portal, spirit, room, quarter, to sleep, and in the codices it represents a cenote.  

Water is a portal between the middleworld and the underworld, where the gods, human companion spirits, and ancestors dwelled, and in some instances, dead bodies were buried in caves so they could “sleep.” The other corresponding glyph is a dragon’s jaw, or mouth, representing a supernatural portal because of its transformative and altering nature.  

Where water emerges from the earth, such as a cave, spring, or cenote, is often considered a supernatural sacred portal.

Water in Maya Art

Maya art frequently portrays water as images of rain gods, aquatic birds, aquatic transportation, shells, marine animals, and marine animal body parts used in rituals. Water is illustrated on artifacts far removed from the sea, throughout inland sites such as at Tikal, Yaxchilan, and Palenque, emphasizing water’s symbolic meaning and ritual importance. Images of the rain gods bringing rain, conch shells, sea creatures, bloodletting rituals with stingray spines, canoes with paddlers, and spiral shapes symbolic of the movement of breath, wind, and the moist ocean air bringing rain are illustrated in sacred images. Illustrations of Chahk, the Maya rain god, underscore his importance in rituals and pilgrimages regarding water and fertility. On a Late Classic tripod pot, called the “cosmic pot,” chief Chahk, the Red Chahk of the East, is portrayed on its inside rising from the primordial sea, and painted on the outside is the underworld’s surface illustrated with a water band, lily pads, and floating shells. Its three feet are painted with streams of raindrops flowing down, thus the tripod pot “embodies its own weather system, and the surface on which it rested would have doubled symbolically as the earth on which such rain falls.” Additionally, Chahk is portrayed with aquatic features, such as a shark head, fins as feet, and water flowing out of his fishing creel on his back, and floating through the sky as if swimming in moist clouds, sending signals rainstorms are arriving.

Water is strongly associated with the underworld, and breaking below the water’s surface is equivalent to passing through a portal, a transition from one realm to another. An underworld journey is depicted on a famous Maya bone carving found inside a mausoleum at Tikal’s Temple I’s base. Along with Jasaw Chan K’awil’s body, one of Tikal’s most powerful rulers, were twenty vessels, slate plaques, alabaster dishes, sixteen pounds of jade artifacts, pottery, and eighty-nine carved bones, four depicting canoe journeys. On two bones the canoes carry five passengers: a dog, a human, a parrot, a spider monkey, and an iguana, and driving the canoe are the Paddler Twins, depicted as old men, with Stingray Paddler in back and Jaguar Paddler in front. Two other bones portray the canoe tipped downward descending into the water, spilling out its passengers,

19 Houston, “Living waters and wondrous beasts,” 74-75.
20 Montgomery, Dictionary of Maya hieroglyphs, 266-267.
21 Ibid., 266-267.
22 Ibid., 266-267.
24 Finamore and Houston, Fiery Pool, 72; Schele, Linda, and Mary Ellen Miller, The Blood of Kings: Dynasty and Ritual in Maya Art (New York: George Braziller in collaboration with the Kimbell Art Museum, 1986), 310-311. The “cosmic pot” belongs to a private collection. It is a polychromed ceramic with a diameter of 31 centimeters and is from the Late Classic Period 600-800 AD. Many pots are composed cosmologically in that the top, the middle, and the feet, depict one of the three layers of the world.
26 Houston, “Living waters and wondrous beasts,” 71.
27 Schele and Miller, The Blood of Kings, 270. The bones were found in Burial 116.
symbolic of death. Inscriptions on all four bones record the supernatural event’s date, and the bone with the level canoe has vertical hieroglyphs at the canoe’s front stating, “Ruler A canoed 4 k’atuns to his passing,” before diving into the underworld. Water is a threshold facilitating passage between worlds, marking an exit from one and embarking on a new journey into another.

Evoked into existence by bloodletting rituals, Paddlers conveyed human souls through life and death and the celestial gods across the sky and through their underworld journey. Stingray Spine Paddler is portrayed with a stingray spine piercing his septum, hence his name, and stingray spines were sacred ritual implements used during bloodletting, traversing great distances inland emphasizing their ritual importance, even when physically removed from the ocean’s presence. Hundreds of miles from the sea at Yaxchilán, the carved Lintel 25 (Structure 23) illustrates Lady K’abal Xook drawing sacrificial blood, commemorating the king, Itzamnaaj Bahlam’s (Shield Jaguar) ascension, and in her left hand is a bloodletting bowl with stingray spines and a vision serpent rising out. In addition, over a dozen of Yaxchilan’s lintels and stelae have headdresses embedded with aquatic signs of Tlaloc, Waterylily, Fish-and-Flower, and the Quadripartite Monster, reinforcing water’s symbolic meaning and role in rituals.

Rooted in mythology, water is the primordial substance, essential to life and where all living things arose from to create the earth. It is associated with physical bodies of water and liquids, aquatic plants and animals, and symbolically linked to spirits and portals. Water, one of the three cosmological components, in the form of rain, is vital to Maya life and agriculture, transforming the earth during the rainy season from barren to fertile soil, thus such devotion and reverence for the rain gods. Water emerging from earth as springs, rivers, caves, and cenotes is fertile, the origins of life, and passing below its surface, reentering the water, is symbolic of death, commencing one’s underworld journey. Water to the Maya is suffused with symbolic and mythological meanings and abundantly used and referenced in ritual because of its associations with life, death, and transformation.

3.2 Water in the Landscape and the Usumacinta River

Ancient man’s inscriptions into the land were, more frequent than today, rooted in mythology, spiritual beliefs, and a unique world understanding particular to each unique culture. Cultural patterns vary, “different cultures comprise different rules, which guide behavior and subsequently affect the design and organization of architectonic spaces.” Culture influences the built world, and conversely it influences those who inhabit and act upon it, evoking emotions and creating emotionally charged areas, as “human beings are not merely located in space, but have feelings towards it.”

Human experience, molded by inhabiting space and partaking in cultural celebrations and civic events, invests the lived world with value and “features assigned to space become markers of human action.” The city fabric is the visible continuity and evolution of a culture, modified and transformed, and defined and redefined by human interaction. It transmits history, memory, and social ideals to the community, and for each individual, it supports their everyday living through acting upon and resisting the various factions of a community.

30 Ibid., 270-271. Four *katuns* is approximately 76.68 years. One *katun* is equal to 19.13 years.
31 Ibid., 270.
32 Ibid., 271.
33 Tate, *Yaxchilán*, 88.
34 Ibid., 72-77-76. Lintel 6 and 43 depict the waterlily headdress. Lintel 6 and Structure 33’s hieroglyphic steps depict ballgame players with the fish-and-flower headdress. The Tlaloc headdresses, which are actually tied onto the head, are depicted on Lintels 8, 17, 24, 25, and 41. The quadripartite headdresses are shown on Lintels 9, 14, and 32.
37 Parmington, *Space and Sculpture in the Classic Maya City*, 4-5.
**Symbolic Maya Landscape**

Symbolically manifested in Maya ceremonial centers are temple-caves and pyramidal-mountains acting as world and landscape. Original cosmic scenes of mountains emerging out of water are represented by pyramidal-shaped platforms topped with temples, the gods’ place, which exemplify topography and elevate the structure above the surrounding terrain. Akin to Maya temple plans, caves are depicted as quatrefoils with projections towards the corners, and beneath many sacred Maya temples are caves, in some instances as caverns running extensively throughout entire ceremonial cores, such as at Dos Pilas, Mayapan, Chichen Itza, Xochicalco, and the central Mexican city of Teotihuacán. As previously mentioned, caves are associated with water and points of origin, thus the flowing fertile waters located under the temple were points of origin for many of the temples. Linked to the Maya glyphs *naab’* and *way*, plazas evoke imagery of watery landscapes and very likely during rainstorms their flat limestone paved surface became temporarily covered in water recreating the mythic scene of mountains surrounding by a primordial sea. Furthermore, because smoke often represents clouds and is the gods’ food, during large ceremonies the plazas would fill with incense smoke, appearing like a giant fluid sea and transforming into a portal for communion with the gods and ancestors.

**Physical Maya Landscape**

Maya settlement patterns are impacted by social, economic, technological, historical, geographical, and topographic factors vastly distinct across the different environmental zones. The three overarching zones in the Maya area are the Pacific coastal plains and piedmont, volcanic southern highlands and northern metamorphic highlands, and lowlands, the transitional southern lowlands, central Peten lowlands, and northern Yucatán lowlands. As mentioned, tropical latitudes fluctuate between the wet and dry seasons varying per the exact location. Generally the wet season spans from late May - early June until December, with the largest quantities of rainfall occurring between June and October, and the dry season spans from January to late May - early June, with February through May being the driest and hottest months. During the wet season, afternoon showers commonly last for a few hours, at times as torrential downpours, cooling off the land, recharging lakes, and animating the once calm rivers into voluminous, swiftly moving rivers.

Terrain and rainfall influenced Maya settlement patterns in the different regions and distinct patterns arose. The Pacific coast region has some of the highest rainfall rates in the Maya area, running down the volcanic and piedmont slopes to coastal lagoons before reaching the ocean. The highlands are characterized by volcanoes, valleys, basins, and deep canyons carved

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42 Girard, Rafael, *Los Maya: su civilización, su historia, sus vinculaciones continentales* (México City, Libro México, 1966), 64-65; Girard, Rafael, *Los Chortis ante el problema maya: historia de las culturas indígenas de America, desde su origen hasta hoy* (México City: Antigua Librería Robredo, 1949), 416; Lucero, Lisa J. and Barbara W. Fash, *Pre-Columbian Water Management: Ideology, Ritual, and Power* (Tucson: The University of Arizona Press, 2006), 36; Remington, Judith A., “Current Astronomical Practices among the Maya,” in *Foundations of New World Cultural Astronomy*, edited by Anthony Aveni (Boulder: University of Colorado Press, 2008), 401. Remington describes the seasons by the amount of sunlight, thus their “winters” are when the nights are short and the day is long, and the “summer” is when the nights are long and the days are short.

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out by rivers, which empty into the Gulf of México, Gulf of Honduras, and large lakes formed by volcanic calderas. Highland cities are located in the steep slopes at high mountainous elevations, above where the rivers begin their descent. The terrain subsequently transitions from mountains to rolling hills, but significant topography still exists, creating an interconnected network of streams and rivers running through the valleys. The southern lowlands have high rates of rainfall, and cities such as Palenque, Yaxchilán, Piedras Negras, Bonampak, El Ceibal, Dos Pilas, and Toniná were established near springs and along the rivers. The central lowlands receive moderate levels of rainfall and the terrain levels out, thus there are few rivers, many bajos, seasonal swamps formed in the wet season, and lakes where many cities were established because of the year-round reliable water source. These cities also utilized reservoirs to capture and store rainfall for use during the dry season, which the rulers released, maintaining control over the citizens.\(^{43}\)

As the lowlands progress northward into the Yucatan Peninsula, the terrain levels out into undulating hills and smooth flat terrain, with less surface water and increased subterranean groundwater due to the karst geomorphology facilitating rapid infiltration. Few lakes and streams exist, as the majority of the water is stored underground and conveyed to the sea via an intensive underground network of rivers, cenotes, and caves.\(^{44}\) Yucatan cities, in particular the northern area, are located near cenotes and caves because of the accessible water and their symbolism as origin (Figure 3.06, 3.07, 3.08, 3.09, 3.10).\(^{45}\)

Water, terrain, and latitude impacted the agriculture cycle, rituals, and celebrations. Kings and elite members orchestrated rituals and were responsible for precisely timing the agricultural phases, exhibiting control over human actions and supernatural phenomena.\(^{46}\) Knowing when to plant was imperative to prevent seed rot, increase germination success, and to ensure a crop’s optimal growth.\(^{47}\) Hurricanes and floods, shifting with the seasons, threatened entire communities, and droughts, water borne illnesses, stagnant water, and water-breeding insects endangered citizens’ safety and health.\(^{48}\) Managing the seasonal ebbs and flows of water was critical to the survival of Maya settlements, and each area applied and enacted different practices depending on the needs described in the following paragraphs.

Palenque lies in the jungle foothills of the mountainous Chiapas highlands, where over fifty springs emerge from the hillsides, converging into nine rivers coursing throughout the site (Figure 3.08). Unlike other sites, Palenque has an abundance of water year round, receiving on average 120-144 inches of annual rainfall, with the heaviest period occurring from June until October.\(^{49}\) This extreme rainfall required streams to be engineered and redirected into underground aqueducts, preventing flooding and creating larger contiguous tracts of land for civic construction and habitation.\(^{50}\)

Yaxchilán and the surrounding area receives an annual rainfall of about one hundred inches, causing the Usumacinta River’s volume to dramatically fluctuate and the reason why the

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\(^{43}\) Tikal had an intensive rainwater capture and release system, the inverse of today’s strategies. They used impermeable surfaces to shed water into reservoirs and underground storages. Water was extremely valuable and its release was managed by the elite, which exerted control over the population and their ability to grow crops.

\(^{44}\) Sharer, *The Ancient Maya*, 42.


city is elevated on a limestone shelf above the highest flow, making tolerable a living area prone to flooding. A wall was built along the river to protect the land from fast flowing water, and the river most likely economically benefitted Yaxchilán, integrating it into upstream and downstream river trade.

In the Peten lowlands many seasonal swamps exist, but there are few year-round sources such as rivers and lakes, therefore, at ancient major centers such as Tikal, Caracol, and Calakmul impermeable surfaces and site grading was manipulated, directing the annual 65-85 inches of rainfall towards reservoirs and canals which stored and sustained the city through the dry season. Tikal had six reservoirs near its main ceremonial core, Caracol had two major reservoirs, and Calakmul had 13 reservoirs with an extensive canal system. Elite members controlled and released the stored water, granting absolute control over the people, which in conjunction with determining the time for specific rituals, demonstrated their stronghold over the local population.

The northern Yucatan Peninsula averages a more modest 40-55 inches of annual rainfall, and few surface water bodies exist because the rainfall quickly percolates through the karst to the underground river network, requiring cities be located near cenotes or underground water sources (Figure 3.08, 3.09, 3.10). The ancient site of Ek Balam is near a cenote, Chichen Itza has two very large cenotes at its core, Mayapan has nearly thirty cenotes and caves in its vicinity, and at Edzna extensive irrigation canals conveyed water to agricultural plots outside the ceremonial center (Figure 3.06, 3.07).

Yaxchilán and the Usumacinta River

Yaxchilán is located in the Lacandon Jungle on the northern side of an omega-shaped bend along the Usumacinta River (Figure 0.04, 0.05). The Usumacinta River remains one of the most important rivers in México, much as it was for the Maya during the height of their civilization. Its headwaters begin in Peten, Guatemala, flowing northward for over 600 miles through the Lacandon Jungle, around limestone hills, and through the coastal plains, before emptying into the Gulf of México in eastern Tabasco. It is the geographical and current political boundary separating Chiapas, México from its neighboring Peten, Guatemala, and further north, it serves as a border between the Mexican states of Chiapas and Tabasco (Figure 3.11). While there are rapids, particularly near Piedras Negras, it remains navigable and has been used for commerce and transportation for over 1500 years. It was the trade route for salt, cacao, cotton, obsidian and exotic feathers - all wealthy valuables for the ancient Maya. Other Maya cities along the Usumacinta were Planchon de las Figuras, El Chile, Piedras Negras, and Macabilero, Yaxchilán’s contemporaries.

The Usumacinta River’s drainage basin encompasses an area over 128,000 square kilometers, including the major Maya cities of Palenque, Toniná, Piedras Negras, Dos Pilas, Palenque, Bonampak, Calakmul, Tikal, Seibal, El Mirador, and Uaxcatun. The Usumacinta River accommodates the area’s rainfall, directly and through tributaries, significantly changing the river’s volume and elevation between the wet and dry seasons. During the dry season at Yaxchilán the river flows roughly twenty meters lower than the wet season, when the muddy river runs swiftly

52 Ibid., 116, 125.
53 Ibid., 125.
54 Ibid., 127.
meters shy of Yaxchilán’s ceremonial core elevation.

Today one usually arrives to Yaxchilán by boat, traveling through the rain forest, which disguises the city’s presence (Figure 3.13). Dense trees have rooted into the banks, plazas, and the modified hillsides, obscuring the view of the natural terrain and open spaces. Undoubtedly, the experience of arrival today is quite different from when the Maya inhabited Yaxchilán, and most likely, the majority of trees were cleared away from the banks, granting a clearer view to and from the buildings, plazas, and stelae perched on the natural limestone shelf. One would see the modified topography, a panorama of buildings constructed into the hillsides and on the highest hilltops overlooking the city, river, and valley. The city’s presence must have exuded a feeling of power as one arrived or passed by, unlike today, in which the city, covered and obscured by vegetation, emanates a mystical feeling. The dense vegetation obscures views, building alignments, and even the river, leaving Yaxchilán to be revealed through each footstep, turn, and ascension of steps towards higher elevations.

Yaxchilán’s settlement patterns were heavily influenced by the Usumacinta River and steep karst hills (Figure 3.12). As discussed in the previous chapter, the majority of buildings, including two sweatbaths, are located in the flat Great Plaza perched above and running parallel with the Usumacinta River, on the S-curved ridgeline with pairs of buildings on its various terraces, and on a series of truncated hilltops gathered around central courtyards and plazas. The majority of buildings on the Great Plaza’s northern side, including two of three sweatbaths, face towards the plaza and away from the river. The river was not ignored, however, evident in the eastern Great Plaza’s building alignments adapting to the river’s bend.

Seasonally the river creates two distinct landscapes, transitioning between peaks. During the dry season the city is perched high on a limestone shelf wedged next to a steep hillside with a calm jade-colored river in the distance flowing through the sandy riverbanks and large river boulders (Figure 3.13, 3.14, 3.15). During the wet season the Usumacinta’s width is considerably augmented, surpassing 200 meters wide, doubling or tripling its dry season width, and rising up so it approaches the Great Plaza’s grade, topping off about three meters below (Figure 3.16, 3.17, 3.18). Undoubtedly the muddy river was part of the Great Plaza’s landscape, flowing alongside it and its buildings. To further enhance the landscape connection, today’s vegetation along the banks would not have been present, thus strengthening the relationship between the Great Plaza and the Usumacinta River.

Yaxchilán’s rainfall collects in ravines to the site’s south and in the Great Plaza, all eventually flowing into the Usumacinta River (Figure 3.12). South of the Great Plaza, buildings were placed along an S-curved ridgeline and on three truncated hilltops. The buildings along the S-curved ridgeline were placed on the highest section along the ridgeline’s peak, and thus rainfall would have shed down on both sides. Because the ridgeline curves westward and then eastward, it creates a deep ravine between itself and two other hilltops, therefore, all the rain falling upon and within this area would flow down to the Great Plaza, and eventually to the river. Today this ravine is covered in dense jungle vegetation, however, during Yaxchilán’s habitation, it was most likely removed or thinner and thus, the rainfall would have been more voluminous and its velocity more swift. The Small Acropolis, located on a truncated hilltop where the third sweatbath is located, likewise sheds water down its steep hillsides to the Great Plaza and into a steep valley to the southwest, eventually draining into the Usumacinta. This same valley also receives the rainfall from the back of the S-curved ridgeline.

Because Yaxchilán’s entire southern side is comprised of steep hilltops and ridgelines, the entire length of the Great Plaza would receive the majority of the site’s rainfall, and a large quantity would drain from the steep ravine near Structure 40 and 41. Thus, it is comprehensible why many of the Great Plaza’s buildings, in particular those in the inner subdivisions, are elevated on
Figure 3.06 Map of Chichen Itza with locations of cenotes [used with permission from Carnegie Institute]

Figure 3.07. Chichen Itza’s Sacrificial Cenote
Figure 3.08. Cenote Samula,

Figure 3.09. Cenote X’Keken

Figure 3.10. Gran Cenote
Figure 3.11 Map of the Usumacinta River Basin
Figure 3.12 Runoff Map of Yaxchilán and the Usumacinta’s Wet and Dry Season Elevations. Utilizing Ian Graham’s 1977 map after John Bolles’ map of 1931.
Figure 3.13. Usumacinta River dry season from river

Figure 3.14. Usumacinta River dry season from Great Plaza

Figure 3.15. Usumacinta River dry season from river
Figure 3.16. Usumacinta River wet season in the river

Figure 3.17. Usumacinta River wet season

Figure 3.18. Usumacinta River during the wet season SB 17 is visible
Figure 3.19. Midline Section of SB 10

Figure 3.20. Lateral Section of SB 10 through Great Plaza
Figure 3.21. SB 10, view from front

Figure 3.22. SB 10, view across to Str. 22, 23, and 24

Figure 3.23. SB 10, view from Str. 22, 23, and 24 towards Str. 10, 12, 13, and 14

Figure 3.24. SB 10: view of Str. 10’s back, Str. 11, and courtyard
Figure 3.27. SB 17, view of SB 17

Figure 3.28. SB 17, view from SB 17

Figure 3.29. SB 17, view from western end of Great Plaza

Figure 3.30. SB 17, view of SB 17’s back toward Str. 78 and the river
Figure 3.31. Midline Section of SB 48

Figure 3.32. Lateral Section of SB 48 to river
Figure 3.33. SB 48, view towards SB 48

Figure 3.34. SB 48, view from SB 48 towards stairway and dance platform

Figure 3.35. SB 48, view from top of stairway towards SB 48 and dance platform

Figure 3.36. SB 48, view of back of SB 48 and steep descent
terraces to prevent flooding, but also during intense storms, the limestone cement paved plazas would take on a watery appearance, and ball courts, platforms, and stelae would rise up and out of the middle, as if rising out of the primordial sea.

Springs, rivers, lakes, seasonal swamps, cenotes, and caves were essential water bodies to Maya cities. Various settlement patterns demonstrate the ancient’s ingenuity and reflect how different terrain and rainfall required specific water management strategies, such as underground water storages, impervious surfaces, elevating the city above the river, and aqueducts. Understanding the wet and dry seasons’ fluctuations was critical to the agricultural process, ritual life, and fortifying a ruler’s power, dynamically weaving land, water, and man together. Seasonal fluctuations created two distinct and contrasting landscapes expressive of the life cycle’s perpetuity and transforming the sweatbath’s landscape throughout the year.

3.3 Water features, Yaxchilán’s Sweatbaths, and the Sample Group

Topography and Water: Yaxchilán’s Sweatbaths

Exploring water and topography’s cultural rooting and physical manifestations in mythology, art, ritual, agriculture, and city development provides a cultural construct and framework for understanding each sweatbath’s unique symbolic and physical landscape. At Yaxchilan, each sweatbath’s landscape is studied through drawings, maps, and texts, to understand the sweatbath’s relationship with topography and water. These findings are reflected upon at the sweatbath and city scale, prompting a larger inquiry into other Maya sweatbath landscapes, which further situates Yaxchilan’s sweatbaths and reveals integral landscape features and patterns.

As briefly discussed in the chapter’s introduction, Yaxchilán’s sweatbaths each have a unique relationship to topography and water. SB 10, in the Great Plaza’s central subplaza, a small intimate ceremonial space, is on an L-shaped terrace in the northwest corner (Figure 3.19, 3.20). Although in close proximity to the river’s steep descent, SB 10 faces away from the river and inwards to the Great Plaza, similar to most buildings on the river’s side. SB 10 is connected to Structure 13 and 74 on each side, Structure 11 and the courtyard on the back, and across the plaza are several structures on elevated terraces with the steep hillside rising behind them (Figure 3.21, 3.22, 3.23, 3.24). During the dry season the river does not have the same presence it has during the wet season, however, the topographic change down to the river is accentuated. Conversely, when the river transforms into a vast body of moving water two hundred meters wide, the descent would be entirely concealed, and the river would be dramatically present in the plaza space, moving inwards and upwards, physically and audibly. The wet season river experientially expands the plaza two hundred meters to the north. As described before, it is highly likely during intense rainstorms water terraced down the Great Stairway and ran off the steep hillside, temporarily covering this subplaza’s surface with water. Stela 1, the crocodile sculpture, symbolic of water and creation, and additional altars would stand surrounding by the glassy pool of water, as if rising out of the primordial sea. Today water does not pool in this area because the limestone cement paving has eroded away and been replaced with earth and grass. A lateral section through SB 10 and the Great Plaza illustrates no significant topographic change in the natural terrain, although terraces elevate buildings, platforms, and stelae above the surrounded grade (Figure 3.20). The sweatbath’s topography is contrasted in section: steep topography and water are present in the midline section and little to no water or topographic change, except the terrace, is present in the lateral section.

SB 17 is located on the Great Plaza’s western end and part of the large traditional ceremonial space. Analogous to SB 10, SB 17 is located on a flat terrace between a steep hillside on the front and a steep descent down to the river off the back; it faces away from the river and towards the plaza. SB 17 is the sweatbath most connected with the river with an immediate drop off the
back, descending around twenty meters or more down to the river (Figure 3.25, 3.26, 3.27, 3.28, 3.29, 3.30). The river is always present at SB 17 and visible during both wet and dry seasons, however, during wet season it becomes part of the sweatbath’s intimate landscape. Those entering the sweatbath would easily see the river in the background, and conversely, those floating by on the river would see the sweatbath perched on the edge of the limestone shelf in both dry and wet seasons. A connection to the river is evident because a series of stairs off the back of the sweatbath, integrated into the larger terraces, connecting first to the plaza grade and then to the embankment’s descent. In a lateral section through SB 17 and the length of the Great Plaza, the sweatbath is located at the only place where an artificial grade change occurs, at the base of a raised terrace where the only pyramidal-mountain structure sits, evoking the visual of a cave at a mountain’s base (Figure 3.26). Uniquely, SB 17 is located at the conjunction of two grade changes, a natural descent towards the river and an artificial terrace near the base of Yaxchilán’s only “sacred mountain.”

SB 48 is located at the top of the Small Acropolis’ truncated hilltop, and because of the steep hillside, the buildings collectively give an appearance of a mountaintop with several peaks (Figure 3.31, 3.32). SB 48 is located outside the Small Acropolis’ main courtyard and in its own intimate courtyard on the hilltop’s southwestern edge. Comparable to other sweatbaths, off the back is an intense descent and in front is a small flat space, anchored on the opposite side with a tall stairway leading up to the Small Acropolis’ main courtyard (Figure 3.33, 3.34, 3.35, 3.36). Behind the sweatbath are the remnants of a small residential structure, followed by the extreme drop into the ravine, which averages a seventy-five percent slope (40 meter run over 30 meter drop). The perpendicular section reveals walls from the north facing buildings step down to the sweatbath’s terrace, and south of the terrace the grade drops about a meter and continues for a few meters over flat terrain, before plunging into the steep ravine. During the rainy season this ravine collects a significant amount of rainfall, which flows southward before turning back northward and emptying into the Usumacinta downstream from Yaxchilán. Unlike the Great Plaza, during the rainy season the Small Acropolis’ topography sheds water downhill and it unlikely floods. Interestingly, just down the hillside below Structure 45 is a cave, but little is known about it, perhaps because it is extremely dangerous to access due to the steep hillside.58

Topography and water are integral to the sweatbath setting; all three sweatbaths at Yaxchilán are situated near a significant topographic change and two are near the river. The sections reveal two distinct conditions: the midline sections depict all the sweatbaths situated on a terracing slope, facing a steep slope and off the back a steep descent. In lateral sections, little to no topographic change exists, except for SB 48 because it is on the edge of a truncated hilltop. All the sweatbaths face a grade change, however, for SB 10 and SB 17 face the naturally steep hillside, and SB 48 faces the artificial grade change created by the stairway connecting to the Small Acropolis’ main courtyard. SB 10 and 17 are visually and physically connected to the Usumacinta, while SB 48 is high up and removed from it. The Usumacinta’s fluctuation creates two distinct landscapes because the wet season accentuates the water and the dry season accentuates the topography. During the wet season Yaxchilán is surrounded by a vast body of swiftly flowing water extending the plaza visually almost a quarter kilometer, while the dry season landscape creates a feeling of being elevated in the air and on the edge of cliff. When facing SB 10 and SB 17 one sees the river in the backdrop, and at SB 48 one sees the sky and the hilltops in the distance.

**Topography: Sweatbath Sample Group**

Similar patterns emerged among the sample group of thirty-one sweatbaths: half of the sweatbaths (16/31) are located near topographic changes, and of this group three-fifths (10/16) 58 Tate, Yaxchilán, 250. The cave is located near a trail leading past Structure 44 and 45 and is below an escarpment four meters by four meters and two meters high.
are located on the top of an incline, and two-fifths (6/15) are located at the bottom of an incline. All the sweatbaths located near a natural topographic change are at Yaxchilán, Piedras Negras, Palenque, and Chichen Itza, while many other sweatbaths are elevated on a terrace. Three of these sites are located in similar terrain in the Chiapas southern lowlands, while Chichen Itza is located in the flat northern Yucatán Peninsula lowlands. To discern the various placement strategies, sweatbaths located on top of an incline are divided into three subdivisions: on top of a hilltop, on top of a terracing slope, and on flat land with a straight drop. The sweatbaths located at the bottom of an incline, likewise are divided into three subdivisions: the bottom on an incline in a valley, the bottom of a steep incline on a terracing slope, and the bottom of a steep incline.

On Top of an Incline: Sweatbath Sample Group

The first group of sweatbaths on top of a hilltop includes four sweatbaths: one at Yaxchilán and three at Piedras Negras. Two of the sweatbaths, Yaxchilán SB 48 and Piedras Negras SB J-17, are located within the elite residential complexes, and two, Piedras Negras SB O-4 and SB R-13, are in the ceremonial cores. Both Yaxchilán’s and Piedras Negras’ elite residential complexes are located on hilltops, at Piedras Negras the highest hilltop, and both are perched above ceremonial plazas. At Piedras Negras the residential complex is integrated into one of the plaza’s sides, and at Yaxchilán the Small Acropolis is isolated topographically on its own hilltop overlooking the Great Plaza. Within the residential quarters both Yaxchilán SB 48 and Piedras Negras SB J-17 are situated within their own intimate courtyard, outside of the main courtyard group and at a lower elevation than the main courtyard (Figure 3.37, 3.38). Both sweatbaths face stairways connecting to the main courtyard, which upon descending them, the sweatbath would terminate the axis with the sky or distant terrain as the backdrop. Off the back of both sweatbaths are steep descents over twenty-five to thirty meters down into a ravine and a valley, and both eventually drain into the Usumacinta River.

Two sweatbaths are in the ceremonial cores located upon truncated hilltops: Piedras Negras SB O-4 in the East Group Plaza and Piedras Negras SB R-13 in the South Group Court (Figure 3.39, 3.40). Piedras Negras SB O-4 is adjacent to a large temple R-16 with a steep descent over fifteen meters off its back down into a ravine leading to the Usumacinta. It faces an almost flat plaza for over eighty meters, which descends into the valley where sweatbaths Piedras Negras SB S-2, SB S-4, and SB S-19 are located. Piedras Negras SB R-13 is Piedras Negras’ oldest sweatbath in the oldest ceremonial core adjacent to a ball court, temples, and elite residences. Piedras Negras SB R-13 has an abrupt six meter drop off the back into a wide swale where Piedras Negras SB S-2 and SB S-4 are located, and SB R-13 faces a platform and two large temples 125 meters away on the southern side of the court.

The second group includes five sweatbaths on a terracing slope. Two of the sweatbaths, SB 10 and SB 17, are at Yaxchilán, one is at Piedras Negras, SB N-1, and two are at Palenque, the Temple of the Sun and the Temple of the Cross (Figure 3.41, 3.42, 3.43, 3.44, 3.45). All five sweatbaths are in ceremonial cores, three are near ball courts and two are in close proximity to a ball court. Four sweatbaths have a river off the back and face a very large hillside: at Palenque the hill rises over 130 meters, at Piedras Negras it rises over 40 meters, and at Yaxchilán it ascends twenty meters. The Otolum River runs behind the Temple of the Sun and on the side of the Temple of the Cross, a sacred river coursing through Palenque’s ceremonial core and near Palenque’s five sweatbaths. For the other three sweatbaths the Usumacinta River is at the base of their descent.

At Chichen Itza a sweatbath is perched on the edge of a cenote, a transition point within an expanse of flat terrain, making a single severe drop at the mouth. The sweatbath is located at the precise moment in the landscape where the topography changes, earth opens up more than fifty meters wide and plunges twenty-five meters into green murky waters more than fifteen me-
ters deep (Figure 3.46). The Sacrificial Cenote is the most famous cenote in the Maya world, the destination of one of the largest pilgrimages in the Maya area, and dredging removed thousands of artifacts related to offerings made for fertility and to the rain god Chahk. The purpose of the sweatbath is believed to be for purification of the offerings before they were cast into the waters, which is discussed later in this chapter. The Sacrificial Cenote creates an axis with another large cenote, each anchoring an end, passing through Chichen Itza’s ceremonial core, the Temple of Kukulkan and the Platform of Venus.

At the Bottom of an Incline: Sweatbath Sample Group

Another topographic condition occurs when the sweatbath is at the bottom of a steep incline, accounting for one-fifth of the total sweatbath population (6/31). In this group three sweatbaths are located at the bottom on an incline in a valley, two are located at the bottom of an incline on a terracing slope, and one is located on the bottom of an incline. This first group of sweatbaths, Piedras Negras SB S-2, SB S-4, and SB S-19 are all elite residential sweatbaths amongst other residential structures, all within the same vicinity slightly downhill from the South Group’s ceremonial core (Figure 3.47, 3.48, 3.49). SB S-19 aligns with residential structures Structure S-17 and S-18, all situated on a flattened portion of a swale and face other residential structures, SB S-2 and SB S-4, and the South Group. SB S-2 and SB S-4 are situated on the opposite side of the swale, on the slope descending from the South Group’s ceremonial core, and elevated about two meters higher than SB S-19. This valley continues to descend thirty meters over the course of five hundred meters, a moderately flat journey, passing by the only ceiba tree indicated on the site map, a cave, a sacrificial rock, and then emptying into the Usumacinta River.

The second group includes two sweatbaths at Palenque, the Temple of the Foliated Cross and the Queen’s Bath, located at the base of an incline on a terracing slope. The most topographic change of all the sweatbaths is illustrated in the Temple of the Foliated Cross’ landscape, one of the three Cross Group temples. Nestled into the jungle vegetation at the foothills of the 130-meter high hill named *Yemal K’uk’ Lakam Witz* (Descending Quetzal-Banner Hill) is the Temple of the Foliated Cross overlooking a small plaza with an altar at its center, the Temple of the Sun directly in front, the Temple of the Inscriptions further beyond, and in the distance the setting sun (Figure 3.50). These three important structures, two of which are symbolic sweatbaths, all terrace down the hillside. The *Lakam Ha’* Spring emerges uphill from the Cross Group, flowing as the Otolum River behind the Temple of the Sun, by the Royal Court, and then cascading down forty meters into a series of terraced pools where the Queen’s Bath sweatbath is located (Figure 3.52). When the Otolum reaches the forty-meter descent towards the Queen’s Bath, it widens to nearly five or six meters before plunging over the edge and cascading down the rocks, collecting in pools behind the Queen’s Bath, and flowing through another series of terracing pools and rolling waterfalls. Directly in front of the sweatbath is a group of buildings and beyond, and running parallel to the Otolum River is the Murciélagos River, which converges with the Otolum downstream.

The Queen’s Bath and Chichen Itza’s cenote sweatbath are located adjacent to two of the most impressive water features near sweatbaths, enhanced by the topographic change. In both instances the topographic change occurs on the sweatbath’s side, and for the Queen’s Bath, the waterfall is on its side and the terracing pools pass behind.

60 Satterthwaite, Linton Jr., and Mary Butler, J. Alden Mason. *Piedras Negras Archaeology, 1931-1939.* (Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology, 2005), 12-13. This map is from University of Pennsylvania’s archaeological excavation, and the cave is called Maler’s Cave.  
ON TOP OF AN INCLINE

Figure 3.37. Midline Section, Top of Incline, Yaxchilán SB 48

Figure 3.38. Midline Section, Top of Incline, Piedras Negras J-17
Figure 3.39. Midline Section, Top of Incline, Piedras Negras R-13

Figure 3.40. Midline Section, Top of Incline, Piedras Negras O-4
Figure 3.41. Midline Section, Top of Terracing Slope, Yaxchilan SB 10

Figure 3.42. Midline Section, Top of Terracing Slope, Yaxchilan SB 17

Figure 3.43. Midline Section, Top of Terracing Slope, Piedras Negras N-1
Figure 3.44. Midline Section, Top of Terracing Slope, Palenque Temple of the Sun

Figure 3.45. Midline Section, Top of Terracing Slope, Palenque Temple of the Cross
ON TOP OF A SINGLE DESCENT

Figure 3.46. Lateral Section, On Top of a Single Descent, Chichen Itza Sacrificial Cenote

AT BOTTOM OF AN INCLINE

Figure 3.47. Midline Section, At Bottom of an Incline, Piedras Negras S-2
Figure 3.48. Midline Section, At Bottom of an Indine, Piedras Negras S-4

Figure 3.49. Midline Section, At Bottom of an Indine, Piedras Negras S-19
Figure 3.50. Midline Section, At Bottom of Terracing Slope, Palenque Temple of the Foliated Cross
Figure 3.51. Midline Section, At Bottom of an Incline, Piedras Negras P-7

AT BOTTOM OF A TERRACING SLOPE

Figure 3.52. Midline Section At Bottom of a Terracing Slope, Palenque Queen’s Bath
The last sweatbath, Piedras Negras’ SB P-7, is at the bottom of the second steepest hillside of eighty meters. No structures are directly between SB P-7 and the hill’s summit and it faces the side of Structure O-12, a very large temple (Figure 3.51). Further in the distance at the same elevation are the South Group’s ritual structures, and interestingly SB P-7’s midline closely aligns with the South Group’s ball court, adjacent to SB R-13. Although SB P-7 is more or less at plaza level and not above it, like the Temple of the Foliated Cross, both SB P-7 and the Temple of the Foliated Cross appear like caves, apertures into the mountain. When water flowed out of the drain or off of the steep hillside, SB P-7 would have appeared like a cave with a stream flowing out of the watery mountain opening. While the Temple of the Foliated Cross is a symbolic sweatbath, never physically heated with water and fire, water would still flow off the mountainside and around it, and it is very plausible clouds of incense created during rituals and emitted from its doorways, would create the image of rainclouds emerging from a cave.

In summary, half of the sweatbaths are located near natural topographic changes, influencing their siting. The majority of the sweatbaths are on top of natural inclines, however the most impressive topographic changes occur at the incline’s base, such as Palenque’s Temple of the Foliated Cross and Piedras Negras’ SB P-7. One-third of sweatbaths near topographic changes (5/16) are categorized as having moderate slopes, five to fifteen meters of change, however, two thirds (11/16) actually experienced more than fifteen meters of grade change, and (5/16) almost one third of the entire group experience more than forty meters of change, with the largest being 130 meters. Most frequently the topographic changes occur off the back of the sweatbath (14/16), while they face plazas, temples, ball courts, stairways, elite residences, other sweatbaths, and hillsides. Predominately, sweatbaths on top of inclines are in ceremonial complexes (8/10), while those at an incline’s bottom are elite residences (4/6). Many of the sweatbaths located near a topographic change are also located near a water feature (11/16), such as a river, stream, spring, waterfall, or cenote, which will be discussed in the following section. In certain cases such as at Chichen Itza and Palenque’s Queen’s Bath, topography and water intersect, creating a unique sweatbath landscape. The following section investigates these landscapes, interpreting the physical and symbolic landscape, ritual narrative, and artifacts.

3.4 The Physical and Symbolic Landscapes of Palenque and Chichen Itza

Water features such as springs, streams, rivers, waterfalls, and cenotes are frequently part of the sweatbath’s landscape. One third (11/31) of the sweatbaths in the sample group are located near a water feature: three at Piedras Negras, two at Yaxchilán, five at Palenque, and one at Chichen Itza.63 At Piedras Negras, SB S-2 and S-4 are near ancient springs that once flowed, despite their current dryness.64 Rivers are a dominant water features in the sweatbath’s landscape: three are near the Usumacinta River and five are near the Otolum River. At Piedras Negras SB N-1 is located on top of a long descent down to the Usumacinta where along the banks spiral engravings are etched into river boulders. At Yaxchilán SB 10 and SB 17 are located near the Usumacinta, and as previously discussed, the river’s presence is more substantial during the wet season. Palenque’s landscape is woven with over fifty springs and nine rivers flowing underground and throughout its plazas, buildings, and down its hillsides. The Otolum River begins in the foothills and courses through the site’s most important ceremonial core, linking five sweatbaths; it flows by the Cross Group temples and Royal Court and becomes a waterfall cascading and pooling behind the Queen’s Bath. Chichen Itza is situated above a series of underground waterways with cenotes revealing this intricate network, and as described, a sweatbath sits on the

63 These sites have the most sweatbaths per site.
cenote’s edge, which plunges twenty-five meters down into green murky waters. This last section explores the landscapes of Palenque and Chichen Itza, analyzing the relationships between the sweatbath, sacred water features, and topography, enriching the narrative embedded in the sweatbath’s symbolic landscape.

**Palenque**

Palenque is situated in a transitional zone between the Chiapas Highlands and the central lowlands, sitting on a limestone escarpment surrounded by steep cliffs and mountainsides. This landscape is dotted with fifty-six springs threading into nine rivers, which converge downstream with the Usumacinta, and 90 miles later empty into the Gulf of México. The Maya name for Palenque is *Lakam Ha’* meaning “Big Waters” or “Wide Waters,” derived from its watery landscape of springs, rivers, waterfalls, and terracing pools. Annually Palenque receives 120-144 inches of rain, thus water scarcity was not a problem for the ancient Palencanos, however excess water caused flooding and erosion, combined with a shortage of stable hospitable land for dwellings and few large contiguous tracts of land for civic and religious life. Water management solutions required innovation, engineering the site’s hydrology, channeling and redirecting the water underground through aqueducts, and releasing it in the unbuildable terrain and steep hillsides. Many streams, bisecting the plazas and reducing their overall size and impact, were buried in subterranean aqueducts, flowing underneath the plazas, and yielding more adequate space for civic and ceremonial activity. The hillsides were stabilized and terraced, creating over sixteen linear kilometers of terraces for residential dwellings.

Settled into the ceremonial core’s southeast corner is the sacred mountain referred to in Spanish as *El Mirador* (The Lookout) and in Maya as *Yemal K’uk’ Lakam Witz* (Figure 3.53). The mythological narrative commences in these foothills where the sacred *Lakam Ha’* Spring emerges, is channeled in an aqueduct through the ceremonial core, past the Cross Group Temples, Temple of Inscriptions, and Royal Court, before it resurfaces, meandering past the ball court, and then cascading down the steep hillside to the Queen’s Bath (Figure 3.53). The Otolum journeys through this richly layered landscape embedded with mythological origins, beginning with the creation narrative linking mythic past and present, serving as the Triad Deities’ birthplace into the new world, and a place of transformation from one status to another. Five sweatbaths are situated in this landscape: three are symbolic sweatbaths, one in each of the three temples of the Cross Group, and two are functional sweatbaths, one elite residential sweatbath in the Royal Court and Queen’s Bath.

The Mythological Beginnings of the Otolum River at Lakam Ha’ Springs

Located far into the foothills of the *Yemal K’uk’ Lakam Witz* are two main groups of buildings straddling the headwaters of the Otolum River. On the north side is a group of buildings, Temples XVIII, XIX, XX, and XXI, which mirror the Cross Group, and together their inscriptions and pictorial scenes describe the mythological creation and the Triad Deities, linking it to

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67 Ibid., 126-131.
69 Marken, Damien, and Arnold Gonzales Cruz, “Elite Residential Compounds at Late Classic Palenque,” in *Palenque: Recent Investigations at the Classic Maya Center*, edited by Damien B. Marken (Lanham: AltaMira Press, 2007), 151. The research also states that there are perhaps two more symbolic sweatbaths, one in the palace and one in the buildings across from the Queen’s Bath. Not enough information or photos are provided in order to determine if they are symbolic sweatbaths, and this was not known before the fieldwork was conducted, therefore, they were not verified.
70 I relied most heavily on the book written by David and George Stuart *The Eternal City* (2008), which was written after *Palenque: Recent Investigations* (2007). The information was more solidified than the previously written text.
Palenque’s royal lineage. The Cross Group Temples record the later portion of this narrative, chronologically inverting time with construction, but perhaps more importantly coinciding time with the Otolum River’s journey downhill. The temples’ narratives merge myth and history. Not coincidentally, the mythological creation begins where the Lakam Ha’ Spring emerges out of the mountain, the origin source for the Otolum River. Temple XIX is situated in front of this spring, and its platform texts describe in detail the previous ascension to the throne by GI, a deity from the current and previous generation. Further discussed is K’inich Ahkal Mo’ Nahb III, the Palenque king who commissioned the complex’s construction, the primordial water beast, the crocodile, sacrificed to create the earth’s surface, and the Triad Progenitor who gives birth to the Triad Deities bringing the mythological narrative into the current era. Maya texts often record the name of the events’ location at the end, and the narrative closes with, “it happened in front of the well at Lakam Ha’.” Thus the previous generation’s mythological events occurred at the Lakam Ha’ Spring, linking past and current generations and legitimizing the current Palencano rulers’ lineages with the past mythological rulers.

The Cross Group

As the Otolum descends down the mountainside, dropping around twenty meters in elevation, it curves westwardly around the southern group of temples, and then into flatter land, widening somewhat before it flows between the Cross Group Temples and the Temple of Inscriptions. The Cross Group Temples, at the foothills of the Yemal K’uk’ Lakam Witz, are in the southeast corner of Palenque’s main ceremonial core, resting upon a relatively flat limestone shelf occupying an area about 1500 meters by 400 meters (Figure 3.54). The Cross Group Temples are spatially organized around a square plaza believed to replicate the cosmic hearthstone configuration arranged in the heavens by the male creator god, Itzamnaaj. The Temple of the Cross, the dominant temple of the triad, is elevated nearly twenty-five meters above on a terraced platform in the north quadrant and faces south where the Lakam Ha’ spring emerges (Figure 3.56). Inscriptions on this temple state it was, “built before the springs of Lakam Ha’, where the birds first touched the world,” and when it was originally constructed, it would have had a direct view to the springs because the southern temple group was not yet constructed. The Temple of the Foliated Cross is tucked into the mountain’s steep slope, about ten to fifteen meters above the plaza’s grade, facing the western quadrant where the sun sets (Figure 3.57). The Temple of the Sun, in the western quadrant, is on a short terrace facing the eastern quadrant where the Temple of the Foliated Cross is and the sun rises (Figure 3.55, 3.58, 3.59). The fourth side of the plaza is open,

71 Barnhart, “Indicators of Urbanism at Palenque,” 7; Stuart and Stuart, Palenque, 209-225; Tate, Yaxchilán, 45. At Yaxchilán Bird Jaguar IV attempted to legitimize his royal lineage and connection to past rulers by commissioning large amounts of construction and artifacts to be built and erected, that depicted himself with past rulers and the lineage gods.
72 Stuart and Stuart, Palenque, 228. “K’inich Ahkal Mo’ Nahb evidently wanted to leave his mark on this most sacred territory within Palenque by designing a novel temple that was a shrine to GI and celebrated his own intimate connection to the principal member of the Triad.”
73 Stuart, David., The Inscriptions from Temple XIX at Palenque (San Francisco: The Pre-Columbian Art Research Institute, 2005), 178-180; Stuart and Stuart, Palenque, 226-228.
75 Stuart and Stuart, Palenque, 223-225; Stuart, David., “Mythology and Dynastic Succession at Temples XIX and XXI,” 224. The phrase reads: ut-i-tiy-tan che’en Lakam Ha’. Che’en means cave, encompasses many different types of water features including springs. For a more complete understanding of this story and for hieroglyphic and epigraphic details, The Eternal City and Recent Investigations at Palenque are two useful resources. With my specialization in the landscape, many of the findings are outside of my scope of knowledge and thus I rely on the authors’ interpretations for understanding.
76 Stuart and Stuart, Palenque, 213. “Itzamnaaj himself was an important player in the setting up of the three sacred stones in the heavens. It is as though the three Temples of the Cross Group echo the triangular arrangement of such a hearth, with the small radial pyramid- a place for burning-at its very center.” Freidel, Schele, Parker, Maya Cosmos, 67, 80-81. The cosmic hearthstones were also seen in the night’s sky as part of the constellation Orion.
77 Stuart and Stuart, Palenque, 192; Child, “Ritual Purification and the Ancient Maya Sweatbath at Palenque,” 241.
granting a physical and visual connection to the Lakam Ha’ Spring and the temples to the south.

Originally commissioned by K’inich Kan Bahlam, K’inich Janab Pakal’s son, the Cross Group temples were constructed and dedicated in 692 AD. They celebrate the completion of the calendar’s k’atun cycle and the entrance into a new era, recording the details of the Maya’s fourth world creation. The temples’ plans somewhat resemble the typical sweatbath, which to the Maya, were birthplaces, a womb and a portal for entering into the middleworld. Houston’s epigraphic work on the inscriptions inside these temples describe the inner sanctuary as a pib-naah, a sweatbath, which he strongly believes are the “natal sweatbaths” of the patron deities. The Triad Deities were born at a place called Matawiil, a watery mythological birthplace, where the three gods first touched the earth. Matawiil and the sweatbath reinforce the Mesoamerican idea that communities, gods, and humans are born in watery domains such as caves, springs, and lakes. Once each deity descended from the heavens and took residence in their respective temple, a “fire-entering” ceremony was performed dedicating each temple to its honored deity. Each temple’s inscriptions and imagery elaborate each deity’s role and depict a current era ritual. GI is the dominant deity celebrated in the Temple of the Cross, GII is celebrated in the Temple of the Foliated Cross, and GIII is celebrated in the Temple of the Sun.

The Palenque Triad

The oldest triad deity GI, reborn from the previous generation of gods, is honored in the Temple of the Cross. The Temple XIX’s inscriptions indicate GI was born in 3309 BC, well before the Triad Progenitor, the mythological founder associated with the Classic male maize god, in 3121 BC, and before GI’s rebirth at the Temple of the Cross in 2360 BC. Itzamnaaj, the creator god, bestowed the role of king upon GI “in the heavens,” where he had “wide cosmological significance,” and the reborn GI was a “more limited aspect of the god, intimately tied to the Palenque dynasty,” the Palenque ruler a “re-embodiment of GI in his early phase.” The Temple of the Cross’ tablet inscriptions indicate the Triad Progenitor and GI were born in the previous generation, and GI was reborn as one of the current Triad Deities, GI, GII and GIII, 754 years into the current cycle.

Associated with the sun, GI is depicted with the day sign, k’in, in particular the red eastern sun rising out of the primordial sea. He is also associated with water, an aquatic deity, frequently illustrated with shark teeth, fishfin cheeks, shell earflares, and quadripartite headdress with the water bird. In combination he is the aquatic sun rising out of the watery underworld. His temple, the Temple of the Cross, is strongly associated with the celestial realm, decorated with celestial symbols on the shrine’s upper roof and the tablet’s sky band. The tablet depicts the sacred tree at its middle, symbolic of GI and the eastern sky, and below is a k’in bowl, symbolic of the “womb of the cosmic alligator that represents the surface of the earth or the nocturnal

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78 Stuart and Stuart, Palenque, 188, 193.
79 Houston, “Symbolic Sweatbaths of the Maya,” 145; Child, “Ritual Purification and the Ancient Maya Sweatbath at Palenque,”237. The tablet inscriptions describe the sweatbaths’ heat, fundamental to functional sweatbaths, however, Houston believes it is figurative because the sweatbaths lack the architectural features imperative for producing heat.
80 Stuart and Stuart, Palenque, 211. Stuart, “The Wide Waters of Palenque,” 43.
81 Stuart and Stuart, Palenque, 211.
82 Ibid., 189-190.
83 Stuart and Stuart, Palenque, 212-214; Stuart, The Inscriptions from Temple XIX at Palenque, 172, 180, 183. Stuart argues that the Triad Progenitor is not female as believed by Schele, Miller, and Lounsbury, but an aspect of maize god, therefore he does not call her Lady Beastie, which suggests it is female.
84 Stuart, The Inscriptions from Temple XIX at Palenque, 173, 174.
85 Stuart and Stuart, Palenque, 198; Stuart, The Inscriptions from Temple XIX at Palenque, 163, 183; Houston, “Symbolic Sweatbaths of the Maya,” 135.
86 Stuart and Stuart, Palenque, 227; Stuart, The Inscriptions from Temple XIX at Palenque, 167-168, 170.
87 Stuart and Stuart, Palenque, 189; Stuart, The Inscriptions from Temple XIX at Palenque, 168; Schele and Miller, The Blood of Kings, 48.
88 Stuart and Stuart, Palenque, 196.
starry sky,” (Figure 3.60, 3.61). On each side of the cosmic tree is K’inich Kan Bahlam, depicted at age six for his heir designation ceremony and decades later on his inauguration day at age forty-eight; the inaugural event occurred eight years before the temples’ dedication. The Temple of the Cross and GI reinforce the notion of birth, solar rebirth in the heavens, and spiritual rebirth through the rite of passage of kingship.

The third born triad deity is GI, celebrated in the Temple of the Foliated Cross, and known as “baby K’awil.” He is illustrated with a zoomorphic form: an infant human head, reptilian arms, legs, and body, or with human hands and feet and the rest of the body with reptilian features. He is associated with the deity of lighting, royal lineages, and agriculture. Agriculture and procreation are the themes for the Temple of the Foliated Cross’ tablet, which involves water and the primordial sea, the vital elements of creation, sustenance, and survival (Figure 3.62). Centered in the image is a jeweled maize plant, “rising from a basal head,” which reads “precious sea,” and the sprouting corncobs are human heads, indicating the tree is of sustenance and growth. The young king stands upon a shell described as, “precious shell of Matawil,” a watery place of rebirth and germination, and the adult kings stands upon a sacred mountain. Together water (shell) and the earth (mountain) are essential for growing maize and sustaining human life.

The middle born of the triad, GIII, is celebrated in the Temple of the Sun. He has strong solar associations within the realm of sacred warfare, and the “iconographic identity of GIII has been extended to include various jaguar deities, including the Jaguar God of the underworld,” but there is no hieroglyphic connection. This temple’s interior was designed to appear like a mountain, with a large cave mouth opening created through the side panels framing the main tablet (Figure 3.63). Caves, mountains, and sweatbaths all reference and reinforce the symbolism of creation, earth, and entrances into the underworld. The tablet’s image is above various earth symbols with the inscriptions naming it, K’inich Paskab, or “radiant dawning.” Dawning is symbolic of new life, and new life emerged out of caves and from watery domains. Additionally, on the solstice, equinox, zenith, and nadir, the sunrise rays enter at precise angles into the sanctuary as slivers of light.

The Cross Group Design
The Maya builders deliberately designed the temples to display their cosmological hierarchy in the landscape in plan through the triadic layout around the plaza and in section through the composition of their vertical layering (Figure 3.50). The Temple of the Cross, the highest and most dominant temple of the group, has celestial bands in the inner shrine’s upper roof and tablet. The Temple of the Foliated Cross is the second highest and the tablet contains a water band and agricultural process, representative of the middleworld. The lowest of the three temples is the Temple of the Sun, whose interior represents a cave-like aperture representative of the underworld. These three temples, organized through their horizontal arrangement and physical elevation in the landscape, represent the three vertical tiers of the Maya cosmology. Thus the Cross Group is a triadic group organized around the four-sided plaza, centered by the square platform, tablet images reinforcing the four-cornered and four-sided world, a sacred spring in the
Figure 3.53. Map of Palenque’s Cross Group and Otolum River [used with permission from Ed Barnhart]
Figure 3.54. Palenque, Panorama of the Cross Group Temples (left to right): Sun, Cross, and Foliated Cross

Figure 3.55. Palenque, view from the Temple of the Foliated Cross looking towards Temple of the Sun and the Temple of the Cross on the right

Figure 3.56. Palenque, Temple of the Cross
Figure 3.57. Palenque, Temple of the Foliated Cross

Figure 3.58. Palenque, Temple of the Sun

Figure 3.59. Palenque, inside Temple of the Sun
Figure 3.60. Image of Palenque’s Temple of the Cross Tablet [used with permission from FAMSI]

Figure 3.61. Image of Palenque’s Temple of the Cross Tablet-central section-main tablet [used with permission from FAMSI]
Figure 3.62. Image of Palenque’s Temple of the Foliated Cross Tablet [used with permission from FAMSI]

Figure 3.63. Image of Palenque’s Temple of the Sun Tablet [used with permission from FAMSI]
Figure 3.64. Plan, Palenque’s Royal Court Sweatbath [used with permission from Ed Barnhart]

The Arroyo Otuluman-South

Figure 3.65. Sweatbath view of Royal Court from Temple of the Cross

Figure 3.66. View of Royal Court interior and Tower Courtyard
Figure 3.67. Sweatbath entrance corridor

Figure 3.68. Sweatbath, view from heat chamber looking towards drain chamber and steam chamber

Figure 3.69. Sweatbath, view from sweat chamber looking towards heat chamber and drain chamber

Figure 3.70. Sweatbath, view of drain chamber
Figure 3.71. Plan, Palenque’s Queen’s Bath Sweatbath [used with permission from Ed Barnhart]

Figure 3.72. Panorama of Queen’s Bath

Figure 3.73. Palenque, view across from the Queen’s Bath

Figure 3.74. Palenque, view from north side of Queen’s Bath with Otolum River off the back
Figure 3.75. Palenque: Queen’s Bath / Otolum River

Figure 3.76. Palenque, Queen’s Bath doorway

Figure 3.77. Palenque, Queen’s Bath firebox
landscape, and the cosmological vertical layering uniting the three-terraced world. This sacred landscape, one of Palenque’s ritual hearths and where some of the most important ceremonies occurred, is anchored on three sides with symbolic sweatbaths, watery domains of creation, sustenance, and portals to other worlds.

**Portals**

Portals abound in spiritual and physical realms in this sacred landscape, encompassing the overlapping themes of birth, rebirth, and transformation, which transpire in the watery landscapes of springs, mountains, caves, and sweatbaths. Water is a type of portal, symbolic for creation and death, and because the Maya believed water always emerged from inside the earth, it concealed and revealed openings into earth. As the canoe penetrated the water’s surface, dipping below, it enters a portal, symbolic of death, but portals frequently express birth, the entrance into a new world for the very first time, rebirth of an entity itself, or through a change in state or transformation. The first portal expressing birth at Palenque is the natural water feature, the *Lakam Ha’* Spring, flowing out of an aperture in the sacred mountain where the mythological deities of the previous generation were born. This physical portal was simultaneously a mythological portal, grounding and referencing Palenque’s history in the natural landscape. Occurring later in the historical account, is the supernatural portal of *Matawiil*, meaning “Place of Cormorants” or “Place of Water-Birds,” portrayed as a freshwater snail shell with an emerging maize plant. It is the Palenque Triad’s watery birthplace, the rebirth of GI, and where they first “touched the earth.”

*Matawiil* was a portal, a mythological entry point at birth and used by Palenque’s rulers as a ritual aperture to the supernatural realm, facilitating communication with their gods and ancestors. The initial aperture’s sanctification created a portal for later rituals, and each new performance thereafter, layered with significance, further charged the landscape with more potency.

Each Cross Group temple’s innermost structure is a symbolic sweatbath, a portal, believed to be a “natal sweatbath” for each deity, replicating *Matawiil* at a smaller scale. It is known that Maya women gave birth inside functional sweatbaths, thus as each baby left their mother’s watery womb they entered into the sweatbath’s watery womb. Each person’s “natal sweatbath” was a hearth for later rituals throughout one’s life and during critical life-changing moments. Because the sweat bath’s main function was to heat the body up, cleanse and purify it, the sweatbath was used before and during rituals, in particular transformation and transportation rites. The sweatbath ritual was performed to transport ritual performers and athletes, such as priests, kings, and ball players, to the supernatural realm, where they would acquire sacred knowledge from the gods and ancestors. During rites of transformation, which often occurred during a rite of passage, the individual’s state of being or status was fundamentally changed and the prior state was never returned to. For example, the Temple of the Cross’ tablet depicts a young and old K’inich Kan Bahlam, the young on his heir designation day and the old later during his ascension to the throne, and the texts reference the sweatbath’s purpose, *leem naah/ ta och-tel*, which translates to, “he is purified in the temple, for the change,” and the use of the *och* verb previously discussed in Chapter 2, “not only signifies to enter, but also means to become, begin, or change.” Thus, as K’inich Kan Bahlam enters the sweatbath, he transitions into a king through the sweatbath’s purification. The Cross Group tablets illustrate monumental transformations during rites of passage, such as puberty, adulthood, and kingship, all requiring bodily and spiritual purification, and the sweatbath’s heat reestablished equilibrium and harmony before the individual transformed into a new world, the birth of a narrative, the mythological gods, and symbolically associated with the natural feature of a spring.

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98 Ancestors and gods were born inside the earth in watery domains, such as caves, and dwelled here after death. Portal in this sense, is the entering into a new world, the birth of a narrative, the mythological gods, and symbolically associated with the natural feature of a spring.


100 Child, *“Ritual Purification and the Ancient Maya Sweatbath at Palenque,”* 247.

101 Ibid., 249-250.
acquiring the new status.\textsuperscript{102}

\textit{The Royal Court (Palace)}

As the Otolum River continues downhill it is channeled into a subterranean corbel vaulted aqueduct where it courses underground for nearly thirty meters. A portion of the water is diverted through the Royal Court (Palace), functioning like running water for the elite residential complex. During the mid 600s K’inich Janab Pakal commissioned an intensive royal court overhaul, and today it remains elevated upon a terrace nearly ten meters tall, spatially commanding the main ceremonial core.\textsuperscript{103} Grand stairways are on three of its four sides, and courtyards, a tower, multi-storied hallways, and numerous rooms comprise the internal space (Figure 3.64, 3.65). The northern portion of the royal court, such as House A, AD, C, D were primarily used to fulfill administrative duties, and the galleries facing outward displayed the events to a larger public audience.\textsuperscript{104} The sunken courtyards were used as semi-private spaces, and the galleries surrounding them were used to receive dignitaries and visitors.\textsuperscript{105} Glyphs and pictorial scenes depict House E as the house for the king’s enthronement and a ritual procession is believed to have proceeded through House K and the South Subterraneans before arriving at House E. House E and the Tower Court were constantly remodeled and used by the royal families.\textsuperscript{106} Located behind House I and underneath House H is a functional sweatbath, typical of elite residences at Piedras Negras, Yaxchilán, Uaxactun, and Tulum.\textsuperscript{107}

In the Royal Court’s (Palace) southwest corner is a functional sweatbath most likely built around 764 AD and predominantly used by the K’uk Bahlam II royal family (Figure 3.66).\textsuperscript{108} This portion of the Royal Court is more private, granting the royal family privacy for frequent bathing, most likely for hygienic and therapeutic reasons.\textsuperscript{109} The sweatbath is entered through a tight corridor with three low doorways: two stepping down into the sweatbath chamber and one to the drain chamber (Figure 3.67). One can also enter on the far western end of the sweatbath, descending down a set of stairs, which strongly diverges from the small typical sweatbath entrance. This sweatbath diverges from the typical typology because instead of one room encompassing the firebox, it is a series of linear rooms: the sweatbath, drain room, and heat chamber (Figure 3.68). Child indicates a steam room, drain room, and a heat room, and, ‘‘piles of loose stones,’ beneath the two circular holes in the floor of the central chamber (drain room) indicate a hearth area, where water would have been poured over hot rocks to produce steam.’’\textsuperscript{110} The rocks were heated in the heat chamber, and then placed in the drain chamber where water was poured over them. The rooms are separated by short walls, which still allow the hot steam and heat to circulate, although asymmetrically because the sweatbath chamber’s far end would receive substantially less heat than the closer side (Figure 3.69, 3.70). Heating this sweatbath would require a significant amount of heat to ensure it reached all interior extremes and was prevented from escaping the large openings.

North of the Royal Court (Palace), after the Otolum River reemerges to the surface, a three-and-a half meter alligator sculpture is constructed into the aqueduct wall. It is unknown

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{102} Ibid., 252.
\item \textsuperscript{103} Greene Robertson, Merle, \textit{The Sculpture of Palenque: III The Late Buildings of the Palace} (Princeton: Princeton University Press, 1985),82-83; Child, “Ritual Purification and the Ancient Maya Sweatbath at Palenque,” 255.
\item \textsuperscript{104} Marken and Gonzales, “Elite Residential Compounds at Late Classic Palenque,” 150; Stuart and Stuart, \textit{Palenque}, 160-161.
\item \textsuperscript{105} Ibid., 150.
\item \textsuperscript{106} Ibid., 150.
\item \textsuperscript{107} Ibid., 150. As previously mentioned in the footnotes, perhaps there is a symbolic sweatbath located across from House E. I did not verify this and therefore, further verification is needed.
\item \textsuperscript{108} Greene Robertson, \textit{The Sculpture of Palenque}, 118.
\item \textsuperscript{110} Child, “Ritual Purification and the Ancient Maya Sweatbath at Palenque,” 254-255.
\end{itemize}
\end{footnotesize}
why this artifact exists, however, the crocodile and water are both symbolically related to creation.\footnote{Stuart, The Wide Waters of Palenque, 42.} Having the technical objective of channeling water underground, conceivably the engineers optimized its reemergence, thus placing the crocodile sculpture, the primordial water beast, at a pivotal point along the Otolum’s journey, and celebrating the river’s reemergence, linking it with the headwaters’ creation narrative. Shortly after this artistic moment, the river widens in the relatively flat slope, and widens again as it cascades down the terracing hillside towards another elite residential compound.

The Queen’s Bath

The Otolum River begins its forty-meter descent down the terracing hillside, plunging in thin long streams, and gliding and rolling over rocks. At the bottom of the hillside, situated between the Otolum and Murciélagos River are Groups B, C, and the Murciélagos Group buildings dating to 720 - 800 AD (Figure 3.71, 3.73).\footnote{Marken and Gonzales, "Elite Residential Compounds at Late Classic Palenque," 153.} All three groups were elite residences and dormitories, however Group B was composed of ritual structures including a sweatbath, shrines, tombs, and elite dormitories.\footnote{Ibid., 148-149.} Housed in Structure B2, is a sweatbath and other chambers most likely used for changing, as seen at Piedras Negras. From the façade the sweatbath is identifiable because of its short narrow doorway, and the firebox is centered on the doorway at the back of the structure with the benches elevated and straddling the drain (Figure 3.72, 3.76, 3.77). The low roofline, unique with three vaulted arches, intersects with the main sweatbath vault creating a compact space ideal for generating heat. Child’s believes this structure was previously used for something else and later modified, which modifying existing structures to create a sweatbath is not uncommon and occurs at Copán and Yaxchilán.\footnote{Child, "Ritual Purification and the Ancient Maya Sweatbath at Palenque," 252.} Here and at Copán both renovations occurred in elite residential dormitories believed to be for young elite boys receiving ritual training.\footnote{Marken and Gonzales, "Elite Residential Compounds at Late Classic Palenque," 149.}

The Otolum waterfall descends into terracing pools on the sweatbath’s southern side, directly behind the sweatbath (Figure 3.74, 3.75). Proximity suggests after the hot sweatbath, bathers would dip into the cool waters, as is commonly done, to cool off, seal the pores, and relax in the refreshing waters. As the Otolum River passes the elite complex, it converges downstream with the Murciélagos River, likewise originating from Yemal K’uk’ Lakam Witz but on the opposite side (east), and their convergence creates a peninsula. Removed from the main ceremonial core, this group of elite residences and ritual structures, tucked under the jungle canopy and near the two rivers, would have been a very private space for the elites to dwell and conduct their own rituals.

Chichen Itza: Pilgrimage to the Rain God

Chichen Itza’s Sacrificial Cenote was one of the most important pilgrimage destinations in the Maya Empire dedicated to the rain god Chahk. Diego de Landa wrote, “And they held Cozumel and the well of Chichen Itza in the same veneration as we have for pilgrimages to Jerusalem and Rome, and they used to go visit these places and to offer presents there...as we do to holy places.”\footnote{Landa, Diego, Relación de las cosas de Yucatán (Mexico City: Editorial Porrua, 1959), 48; Tozzer, Aldred M., Landa’s Relación de las cosas de Yucatán (Cambridge: Peabody Museum, 1941), 109. Note 500 also says that Landa wrote, “those two wicked sanctuaries at Chichen Itza and Cozumel, where they sent an infinite number of poor wretches for sacrifice.”} The Sacrificial Cenote is located on the northern extreme of an axis, which extends through the Platform of Venus and Chichen Itza’s main temple, Kukulkan, terminating on the southern end with another large cenote, Xtoloc Cenote (Figure 3.78, 3.81). The Sacrificial Cenote...
is connected to the main plaza by a *sacbe*, ending where the terrain begins to descend towards the cenote’s opening. Nearly fifty meters wide, the cenote is surrounded by dense vegetation with a 25-meter drop into green murky waters. The water is about fifteen meters deep with about five meters of thick mud at the bottom filled with decaying vegetation and offerings. The greenish water was not accessible, nor drinkable, however it is believed that buckets were lowered down to collect water for ritual purposes.

On the cenote’s southern side is a stone sweatbath, perched precisely on the edge and where the landscape shifts (Figure 3.78). This sweatbath is also referred to as a shrine, used for purification before offerings were cast into the sacred waters, and Diego de Landa described it as where pilgrims encountered carved stone idols of pumas and humans, vases, and other objects when they arrived. Like the other two sweatbaths at Chichen Itza, the doorway is a small opening, but raised about a meter high, barely accommodating an adult human to enter on their stomach. The structure has partially collapsed on the opposite side, and because there is no roof, one can see two chambers separated by a wall. There is a central opening, however, without the complete façade it is hard to determine if it was a doorway. Unlike the majority of functional sweatbaths, this sweatbath has engraved stones on its western façade, which appears like a plumed-serpent feathers around the structure’s bottom. Because of the sweatbath’s location on the edge of this sacred cenote, its purification nature combined with the ritual function of the cenote, it is highly probable that offerings, including humans, were first purified in the sweatbath before they were offered to the rain god Chahk, who resided in the cenote (Figure 3.79, 3.80, 3.82, 3.83).

For the Maya, empire wide pilgrimages were made to the cenotes of Chichen Itza and Cozumel, among other destinations. Pilgrimages are spiritual journeys to a shrine, temple, oracle, or sacred place, performed once in a lifetime, usually requiring immense distances to be traveled, or more frequently to a nearby place of personal connection. The Maya, as described in Chapter 2, made regional pilgrimages to ceremonial centers, and within each community pilgrimages were made to sacred mountains, temples, water sources, caves, and other sacred places. Today contemporary Maya continue to make pilgrimages to sacred sites during agricultural rituals, the clearing of the fields, weeding, planting and harvesting, spiritual renovation, and during major life-cycle events such as the burying of a baby’s umbilical cord, marriage, and installation and ordination of new ritual leaders. Fertility is often an impetus for pilgrimages, in particular at Chichen Itza. Rituals, offerings, and sacrifices to the rain god and earth god were integral to Maya life and culture, ensuring the gods’ satisfaction and abundant resources in return. Water was sent to humans from the rain gods who dwelled in caves and other like water sources, such as cenotes.

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117 Coggins and Shane, *Cenote of Sacrifice*, 25.
118 Ibid., 29.
119 Tozzer, *Landa’s Relación de las cosas de Yucatán*, 126, 182-183. Note 584. Note 955 suggests this “temple” is a sweatbath. Tozzer writes, “the ‘small building’ usually called ‘a temple,’ probably consisted of three rooms. The first on the east, about ten feet from wall center to wall center, seems to contain a circular opening with flues running from it. Maudsley noted it looked very much like an oven. It may have been a large incense burner for use in rites performed here. Another suggestion has already been made that this may have been a *zumpulche* or sweat house. Behind this room there is evidence of two smaller apartments.”
122 Landa, *Relación de las cosas de Yucatán*, 51; Urquizú, Monica, and Heather Hurst, “The Murals of San Bartolo: A Window into the Art and Cosmovision of Precolombian Man,” *PARI Journal* 1 2, no 2 (2011): 8-13. The mural from San Bartolo, Guatemala, just kilometers north of Tikal, dates back to 200-100 BC, the Late Preclassic Period, and depicts a ritual offering occurring at the mouth of a cave. The mural is believed to be an agricultural ceremony called the Preparation for the Maize God. Fertility is at the heart of mural: offerings are being made, the women are kneeling in a birthing position, they have bare breasts and their hips are rounded. These are all specific signs indicating fertility.
123 Morehart, Christopher T., “Plants and Caves in Ancient Maya Society,” in *Stone Houses and Earth Lords: Maya Religion in the*
Figure 3.78. Lateral section of Chichen Itza sweatbath axis extends between two cenotes

Figure 3.79. Chichen Itza, side of sweatbath on the edge of Sacrificial Cenote

Figure 3.80. Chichen Itza, sweatbath from front on the edge of Sacrificial Cenote
Figure 3.81. Chichen Itza: Temple of Kukulkan

Figure 3.82. Chichen Itza, sweatbath’s south facade with entrance on the east (right) side

Figure 3.83. Chichen Itza, sweatbath’s west side with carvings at the bottom
In the 1900s, led by Thompson and Harvard University, mud at the bottom of the Sacrificial Cenote was dredged to gain insight about the type of offerings and sacrifices the pilgrims made. Tens of thousands of artifacts were excavated from the cenote’s thick mud, and although artifacts spanned a much longer history, two main offering phases were established: one group from 800 -1150 AD and the second group from 1250 - 1539 AD. Artifacts from the earlier time period appeared to be offered by elite people, while the later offerings were predominantly common people.124 In their excavations they discovered objects of metal, jade, human bones, textiles, basketry, wood, pottery, stone, bone, shell, copal, rubber, and other vegetal materials.125 Many of the jade, metal, rubber, and copal artifacts were burnt and broken, especially those of the earlier phase.126 The Maya conceived of many objects, in particular sacred objects, as animate living entities, and the fragments appear to have been intentionally “killed.” These objects most likely contained an affecting presence, defined by Robert Plant Armstrong as a cultural object made with intention and meaning, believed to be alive with human capacities, and whose physical condition generates emotion, feeling, and value.127 Objects that have an affecting presence are often “bathed, clothed, fed, and when its usefulness has ended, buried. Indeed in certain kinds of magical situations, it can be ‘sickened,’ ‘deprived,’ ‘wounded,’ or ‘killed.’”128 Thus, the destroyed, broken, and shattered artifacts, “from the sequential effects of fire and cold water,” suggest these objects were conceived of as animate objects with an affecting presence, and like their human sacrificial counterparts, heated up and purified in the sweatbath, and cast into the cenote’s sacred cool waters, where they shattered into pieces upon contact.129 However, for the Maya, unlike Armstrong’s description, these figurines and offerings did not lose their usefulness when they were “killed” but upon penetrating the water’s surface, their energy was transformed into their true potentiality as offerings and sustenance for the gods.

**Conclusion**

Rooted in symbolism as the womb of Mother Earth, the sweatbath structure is a four-sided and four-cornered replica of the cosmos, physically situated in ceremonial cores and elite residential complexes and amongst a physical and symbolic landscape of water and topography. The landscape reflects the structure and ritual’s inherent meaning, emphasizing its transitional and shifting nature, physically through its proximity to topographic changes and water features, and symbolically, as a threshold between worlds and a watery fertile place of birth and renewal. At Yaxchilán the three sweatbaths are located on the edge of a topographic change, a transitional zone in the landscape where off the structure’s back the topography shifts from flat to inclined down to the river or into a deep ravine. This pattern resonates with half (16/31) of the sweatbaths...
in the sample group, and in several instances, like Palenque and Chichen Itza, the topographic change is up to a sacred hilltop or down to a sacred water feature. Unlike many buildings, which face the steep topographic change and look over the land below, such as Yaxchilán’s Structure 33, 40, and 41 and the Small Acropolis’ entire northern row of buildings, the topographic change almost always occurs behind the sweatbath. This condition affects the bathers’ perception, and upon entering one has the visual experience, much like entering a cave, of going down into earth, into the steep mountainous backdrop or a body of water. Therefore, the sweatbath’s larger context, its liminal siting near a topographic change, enhances the experience of entering the womb of Mother Earth, reinforcing the ritual’s transitional nature, changing the bathers from sick to healthy, dirty to purified, from boy to king, and man to heroic ball player.

The site’s transitional qualities are strengthened through water’s presence, symbolic of fertility and a material threshold between worlds. While water is essential to the sweatbath ritual, most likely collected from a nearby water source and afterwards bathed in to cool the body, its symbolic underpinnings are essential to the sweatbath’s placement. As illustrated at Palenque with the Lakam Ha’ Spring and the Otolum River, water is a place of mythological and historical birth, merging together time, place, and history. The rain god Chahk, believed to dwell in the Chichen Itza’s Sacrificial Cenote, was given offerings, including humans, cast into its fertile waters for over a thousand years. Water features like these are transitional realms, mediating between the living and the dead, the ordinary and the supernatural, the gods and humans, and the physical and symbolic. In conjuring up the sweatbath’s hot vaporous interface through the transformation of fire and water, the sweatbath structure becomes a portal, an entrance into the supernatural realm for communing with gods and ancestors, and for birth and renewal, by entering into a new world or into a new stage of life. In projecting out into the sweatbath’s landscape, the sweatbath structure as a transitional domain, is embedded in a likewise transitional and transforming landscape of water and earth, the fusion of idea, structure, making, and landscape.
Alignment and Transient Connections

The Sweatbath and the Celestial Domain

The celestial domain for ancient man was a place of transcendence, of utmost high where the gods and select few mortals dwelled. The celestial domain, located in the uppermost vertical tier of the cosmos beyond man, created “a total awareness on man’s part; beholding the sky, he simultaneously discovers the divine incommensurability and his own situation in the cosmos.”1 Man, placed in the middleworld, distanced from the celestial domain, observes its movements and phenomena like a perpetual narrative across the day and night’s sky.

The Maya oriented and arranged their cities, buildings, and artifacts with celestial phenomena, charting their journey through the sky and celebrating unique conjunctions at cities such as Chichen Itza, Copán, Palenque, and Yaxchilán, among others.2 Illustrating this is a map of Yaxchilán’s two dominant building alignments: one in the Great Plaza with buildings generally facing or perpendicular to the winter solstice sunrise and a second with hilltop structures generally oriented toward the summer solstice sunrise (Figure 4.01, 4.02). Two of Yaxchilán’s three sweatbaths, SB 10 and SB 17, are situated in the Great Plaza, surrounded by buildings generally aligned toward the sun’s most southern destination on the horizon, the winter solstice. Constructed in later developmental stages, SB 10 and SB 17’s facades are perpendicular to the winter solstice sunrise, responding to the surrounding structures and reinforcing the solstice alignment. Three hilltop structures generally facing the summer solstice sunrise, Structure 33, 40, and 41, are elevated above the city and valley where the Usumacinta River flows, providing a view of the horizon and rising sun as it travels throughout the year.

The sweatbaths’ siting, amidst many buildings generally oriented to the winter solstice, although not perfectly, suggests their orientation is influenced by the celestial bodies’ movements. Not consistently oriented towards a specific cardinal direction - sweatbaths face each quadrant, however, upon closer investigation some sweatbaths like the two at Yaxchilán, align with the celestial bodies or buildings oriented towards the celestial bodies’ presence, and perhaps more sweatbath alignments exist but are currently unknown. This chapter explores in four parts the celestial bodies and their impact on the sweatbath’s siting. First, the rooting of the celestial bodies is explored: what were the celestial bodies, how did they impact Maya cities and architecture, and what beliefs and practices persist today. Second, Yaxchilán’s evolution is investigated, revealing building patterns followed and reinforced over time, and a latent narra-

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2 Tate, Carolyn Elaine, Yaxchilán: the design of a Maya ceremonial city (Austin, Texas: University of Texas Press, 1992), 111-115.
Figure 4.01. Map of Yaxchilán with celestial orientations and sweatbaths identified. Utilized Ian Graham’s 1977 map after John Bolles’ map of 1931 as base map.

Figure 4.02. Map of Yaxchilán and the winter solstice sunrise angles and degrees. Utilized Ian Graham’s 1977 map after John Bolles’ map of 1931 as base map.
tive embedded in the landscape. Analysis of Yaxchilán’s three sweatbaths is explained in section three, discussing how the sweatbaths are situated in landscapes connected to the celestial bodies, and lastly, in projecting into other sweatbath landscapes of the sample group, a few unique sweatbaths influenced by celestial bodies are discovered and explored.

4.1 The Maya Celestial Bodies and Building Orientation

The Maya observed and documented in their codices celestial movements: risings, settings, disappearances, standstills, conjunctions with other planets, and completions of cycles. Earthly activities were coordinated with the celestial domain, “certain days and numbers propitious or otherwise for such activities as planting crops, hunting, marriage, collecting honey, curing disease, making war, or the outgoings and incomings of planets,” and likewise coordinated with the ritual calendar to determine auspicious and ominous days. Maya time, based upon and coordinated with three primary calendars (discussed briefly in Chapter 2 with the cosmological diagrams), involves the Tzolk’in, a 260-day sacred round prognostication calendar, the 365-day vague year calendar, and the 360-day tun calendar, counted in multiples of twenties (20 katun, 400 baktun, 8000, etc), facilitating quickly counting forward and backwards through time. Most historical dates were recorded using the Tzolk’in, made up of thirteen numbered days, rotating through twenty named days, and the 365-day calendar, composed of eighteen numbered days, rotating through twenty named days, resulting in 360 days and five ominous days added at the end. The Tzolk’in was integral to agriculture and the basis of Maya life, and symbolically and physically connected with the movement of the celestial bodies, sun, moon, planets, and stars.

Codices

Astronomical information, abundant and integrated into ten of seventeen surviving pre-Hispanic manuscripts, illustrates the importance the Maya placed on predicting and organizing activities around the celestial bodies. For example, the Dresden Codex, one of four surviving Maya codices, contains extensive information about the celestial bodies, in particular the moon, Venus, and Mars, discussing religious divinatory data, tables predicting future sky positions, and correction tables adjusting extended periods of time. Six pages are dedicated to Venus’ revolutions, “a one page preface, 584 days accumulate on each of these five pages, via smaller intervals of 236, 90, 250, and 8 days…the average of times of visibility of Venus as morning star, invisibility around superior conjunction, visibility as evening star, and invisibility around inferior conjunction,” acknowledged approximations of Venus’s appearances, not always its actual appearance. After Venus, eight pages follow providing eclipse prediction tables, related to the 260-day calendar, organized into 33-year period intervals of 405 lunations, which require adjusting after every five cycles. These tables’ significance is explained, “In less than 16 years, the 260-day calendar commensurate the synodic period of the moon and all the visible planets to within 4.31 days. Three sacred rounds equal one Mars year, four are three days less nine Mercury years, five are 16 hours less than 44 lunar months, 16 are a day more than 11 Saturn years, and 23 sacred

4 Juteson, John S., “Ancient Maya Ethnoastronomy: An Overview of Hieroglyphic Sources,” in Foundations of New World Cultural Astronomy, edited by Anthony Aveni (Boulder: University of Colorado Press, 2008), 511, 523-525. The Maya also used a lunar calendar and a 9-day calendar.
6 Thompson, “Maya astronomy,” 84-86.
7 Juteson, “Ancient Maya Ethnoastronomy,” 514, 536.
rounds are three days less than 15 Jupiter years."9 Eclipses were dangerous times and predictive tables, linked with the ritual calendar, the moon’s cycles, and other celestial phenomena could be predicted, coordinated, and accordingly planned for enabled planning to avoid certain activities during these celestial phenomena, in particular for agricultural practices.10 Activities associated with meteorological events during the agriculture cycle and with abbreviated forms of Tzolk’in dates are shown on four pages in the Dresden Codex, 38b to 41b, which include drought, rainfall, the rain god Chahk planting with his digging stick, the rainbow goddess Chak Chel, also the moon goddess, pouring water from a container, and so on.11 Because these Tzolk’in dates coincide with the beginning of the Yucatan rainy season, the Brickers believe these agricultural almanac pages are not only concerned with agricultural practices and their seasonal characteristics, but actual events grounded in history and adjusted over time like contemporary almanacs.12 Many codices, like the Dresden Codex, were divinatory texts containing information about the celestial bodies and used by priests and rulers to make predictions and plan opportune times for activities.

The Sun

The sun was many things to the Maya: a symbol of life and death, a masculine force, representative of man’s life, fire and heat, a deity, past kings, and the Father.13 Two of the Palenque Triad deities, GI and GIII, have solar associations, and GIII, as Jaguar God of the Underworld, is also a moon god.14 Sun and moon are often paired as complimentary forces: husband (sun) and wife (moon), mother (moon) and son (sun), and hot (sun) and cold (moon).15 In the Popol Vuh the sun descending below the western horizon represents darkness and death, and the east represents light, rebirth, and renewal. This idea, depicted on K’ínich Janab Pakal’s sarcophagus, illustrates him completing his underworld journey, and out of the k’in (sun) bowl positioned on the animate seed, he rises with the world tree, representing east.16 Similarly, the Ch’orti’ Maya and Tzotzil Maya liken the sun’s daily passage to human life, beginning in the morning as a youth, a man at noon, an elderly man at sunset who sometimes dies when it sinks below the horizon. Like K’ínich Janab Pakal, it enters the underworld to later be reborn in the east. Other Maya communities believe at night the sun enters a house and comes out in the morning, thus its exit from the sky is always an entrance into a place it later emerges from, whether a house, cave, or water.17 The sun’s annual cycle also assimilates man’s life, born at the winter solstice, growing until the summer solstice, from where it then becomes “frailer and frailer” in its returns to the winter solstice where it dies.18 Death and rebirth occurring in the same place, keep the cycle in perpetual motion.

Solar eclipses for the Kaqchikel Maya are more dangerous than lunar eclipses because the

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9 Juteson, “Ancient Maya Ethnoastronomy,” 517; Iwaniszewski, Stanislaw. “Glyphs D and E of the Lunar Series at Yaxchilán and Piedras Negras,” Archaeoastronomy, 28 (2004), 67-81. The moon’s age, recorded on artifacts alongside the Long Count Calendar, is in periods of six moons, approximately 177 or 178 days, roughly half the solar year.

10 Juteson, “Ancient Maya Ethnoastronomy,” 524. Attempting to decipher dates led researchers to discover the Maya used a variety of counting systems for determining the Moon’s age, when it was a new moon, full moon, crescent, etc, further complicating concretizing dates.

11 Bricker and Bricker, “Archaeoastronomical Implications of an Agricultural Almanac in the Dresden Codex,” 611.

12 Ibid., 608, 615.

13 Milbrath, Susan, Star Gods of the Maya: Astronomy in Art, Folklore, and Calendars (Austin: University of Texas Press, 1999), 23; Girard, Rafael, Los Chortis ante el problema maya: historia de las culturas indigenas de America, desde su origen hasta hoy (Mexico City: Antigua Libreria Robredo, 1949), 439.


15 Milbrath, Star Gods of the Maya, 31.


17 Girard, Los Chortis ante el problema maya, 444. Milbrath, Star Gods of the Maya, 21.

18 Girard, Los Chortis ante el problema maya, 439.
sun is dying and evil spirits are believed to emerge from the depths of the earth.\textsuperscript{19} While people are not to expose themselves to an eclipsed sky, many cover their body and climb hilltops, making noise with drums, sticks, and bowls, attempting to save the sun.\textsuperscript{20}

\textit{The Moon}

The moon was many things to the Maya: a symbol of fertility, coolness, water, childbirth, a feminine force associated with a woman’s monthly cycles, an old woman, and the ancestral grandmother.\textsuperscript{21} Because of the moon’s tidal connection, it is associated with aquatic animals such as fish, mollusks, toads, frogs, and water birds, and likewise with rabbits for their common silvery color, nocturnal activity, and Maya belief the moon’s image was a rabbit.\textsuperscript{22} Like the sun, the Ch’orti’ Maya liken the moon’s waxing and waning transition to a woman’s monthly cycle, shifting between cool and warm temperatures, and to the life cycle, a new moon representing youth, a full moon a woman, and after the full moon as it wanes approaching a new moon, it grows into an old lady.\textsuperscript{23} Similarly, the K’iche Maya associate a waxing moon with “mother” and waning moon with “grandmother.”\textsuperscript{24} The moon’s phases are also associated with jars of water and a woman’s menstrual cycle: a waxing quarter moon is a jar filling with water, a full moon is a jar full of water, and a quarter waning moon is a jar emptying its water.\textsuperscript{25} The emptying of water from the jar is illustrated in the codices indicative of the rainy season and associated with the moon goddess.

Young women in the Maya codices wear their hair down, distinguished from older women wearing their hair up, and the two principal female goddesses are Goddess I and Goddess O.\textsuperscript{26} Goddess I, as a young goddess, is associated with earth and fertility, and the aged version is portrayed with a single tooth, wrinkled face, and partaking in weaving, an activity associated with older women and the dry season, the agriculture’s off season.\textsuperscript{27} Aged Goddess I is linked with Goddess O, also called Chak Chel, an aged moon goddess who wears a serpent headdress, and is identified with the waning moon, rainy season, fertility, female curer, and diviner.\textsuperscript{28} She is illustrated in the Madrid Codex as a water goddess, a complimentary force of the rain god, Chahk, and a female creator deity linked to the male creator, Itzamnaah.\textsuperscript{29} Ix Chel, the Yucatec Maya moon goddess, is similarly associated with fertility, childbirth, procreation, and weaving, and these moon goddesses’ symbolism and duties overlap with midwifery and birth: spinning and weaving are metaphorically linked to conception and childbirth, rain during the wet season fertilizes the earth, midwives are usually postmenopausal and elderly, and the moon is associated with the cosmic womb, grandmother of mothers, and the female progenitor.\textsuperscript{30}

Related to the moon, these themes are deeply embedded in the sweatbath’s symbolism and ritual. The moon’s association with childbirth and fertility is due to its regenerative power and transformative nature, perpetually dying and being reborn approximately every twenty-nine days, and waxing and waning between full moon and new moon phases, emptying out each

\textsuperscript{20} Ibid., 404.
\textsuperscript{21} Girard, \textit{Los Chortis ante el problema maya}, 439; Milbrath, \textit{Star Gods of the Maya}, 23, 32.
\textsuperscript{22} Milbrath, \textit{Star Gods of the Maya}, 119.
\textsuperscript{23} Girard, \textit{Los Chortis ante el problema maya}, 466; Milbrath, \textit{Star Gods of the Maya}, 28.
\textsuperscript{24} Milbrath, \textit{Star Gods of the Maya}, 28.
\textsuperscript{25} Girard, \textit{Los Chortis ante el problema maya}, 467; Milbrath, \textit{Star Gods of the Maya}, 28-29. The full moon is also associated with masculine qualities, a nocturnal version of the sun.
\textsuperscript{27} Vail and Stone, “Representations of Women in Postclassic and Colonial Maya Literature and Art,” 210-211.
\textsuperscript{28} Ibid., 211.
\textsuperscript{29} Ibid., 221.
\textsuperscript{30} Schele, Linda and Miller, Mary Ellen, \textit{The Blood of Kings: Dynasty and Ritual in Maya Art} (New York: George Brazilier in collaboration with the Kimbell Art Museum, 1986), 167.
time and filling back up. As discussed in Chapter 1, one of the sweatbath’s mythological stories occurs when the moon is asphyxiated, dying inside the sweatbath, and transforming her into a progenitrix figure, which simultaneously underscores the sweatbath’s transformative nature. The moon is also associated with conch shells, a “generative symbol relating to birth rather than death,” which “evokes a connection to the underworld, the place where the moon dies and is reborn.” The sweatbath, like the moon goddess and conch shell, is a cosmic extension of the ancestral womb, where women physically give birth, and like the moon goddess pouring water over the virgin land, inside the dark fertile sweatbath interior the vapor produces assimilated rain clouds full of rain which fall upon the bathers, transforming and purifying them, a symbolic death and rebirth.

Venus

Venus’ astronomical behavior has led to its various personalities and beliefs in Maya mythology. Unlike the daily appearances of the sun and moon, Venus’ astronomical phenomena is more elusive and the Maya recognized this bestowing upon it different names, such as Noh Ek (Great Star) and Xuk Ek (Wasp Star), illustrated in the Dresden Codex (46-50) as a wasp’s abdomen. Maya and Mesoamerican cultures believed Venus’ reappearance on the horizon brought dangerous, underworld influences, therefore, the ancients started no new projects, held no ceremonies, and made no trips at this time. Venus’ reemergence is emphasized in the following passage: “By predicting the day of heliacal rising, the priests were able to warn the threatened group, so that it could take protective measures…Everywhere the outlets and openings [of houses] were closed up. It was said that perchance [the light] might bring a cause of sickness, something evil when it came to emerge.” Venus’ reemergence as a Morning Star evokes fear, however, conversely in other myths, its rising is auspicious, and it is its disappearance as the Evening Star into the dangerous underworld that is ominous, a fearful time as it began its underworld journey. Both instances underline underworld dangers, and emphasize emergence as triumphant, even when time must pass before it is entirely safe.

Another Central Mexican myth relates Venus with the god Quetzalcoatl, the revered mythical feathered-serpent, who depicted in the Codex Telleriano-Remensis, represents celestial waters, rain, maize, and clouds. When Quetzalcoatl died his resurrection was manifested through Venus, and “he wandered in the underworld, and for four days more he was bone (dead). Not until eight days were past did the great star appear…Quetzalcoatl then ascended the throne as god.” After eight days of absence, Venus on its heliacal rising, reappears at its maximum brightness before sunrise in the morning sky, a triumphant time for the people. Its brilliance reduces as it rises higher in the sky slowly pulling away from the sun, and then dances, returning closer to the horizon before it disappears into the solar light for approximately 263 days. The next fifty days Venus is absent from the celestial realm, and in its final stage, it appears as the Evening Star

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31 Milbrath, Star Gods of the Maya, 34, 119. The moon goddess is also associated with rabbits, the jaguar war god (dry season), the water-lily jaguar, jaguar paddler (dry season), and the hero twin, however for brevity I do not discuss them.
33 Miller, On The Edge of the Sea, 86. Many of the buildings at Tulum do not face east believed to avoid potential harm inflicted by Venus after its emergence.
34 Thompson, “Maya astronomy,” 87.
36 Aveni, Anthony F., “Venus and the Maya: Interdisciplinary studies of Maya myth, building orientations, and written records indicate that astronomers of the pre-Columbian world developed a sophisticated, if distinctive, cosmology,” American Scientist, 67: 3, 1979, 275.
on the western horizon for around 270 days, its brilliance increasing as it gradually moves closer to the horizon.38

Stars

Stars to the Maya are “fires” or “lights” in the night and commonly used in conjunction with the moon and sun to tell daily and yearly time.39 Ch’orti’ priests believe stars are the spirits of the dead, and they receive spiritual and practical “knowledge” from the star gods.40 In preparation for the agricultural season, they wake in the night to examine the sky’s stars and their position relative to the sun and moon, seeking the optimal moment to begin the ritual calendar.41 They continue their observance throughout the agricultural season and use the Milky Way’s position to help determine the closing of the Tzolk’in.42 The Ch’orti’ Maya use twelve star constellations to measure time, not as a zodiac, but the twelve brightest stars within a 180-day period.43 The Pleiades’ sky position is used, indicating the arrival of the rainy season and beginning of the rest period.44 Kaqchikel Maya call the head of Taurus the “wedding party,” Orion the “Three Kings,” and the K’iche Maya call Orion the “Three Marys,” and in addition observe a range of constellations including the Milky Way, Big Dipper, and the Thieves Dagger.45

Cultural Astronomy

Cultural astronomy or ethnoastronomy is an interdisciplinary field merging astronomers, anthropologists, epigraphers, and art historians in a common pursuit to understand how celestial bodies influence a culture, in particular for this discussion, the ancient Maya, and their beliefs, reflected in their constructed world. Cultural astronomy has enabled a better understanding of Maya city and building orientations, scheduling of civic and religious events, and political and social hierarchy, revealing the profound connections the ancient and contemporary Maya had with the celestial bodies.46 Celestial alignment is one of several factors, such as topography, climate, religion, social considerations, protection and chance, or randomness, influencing a city and building’s siting, and today we understand that for the ancient Maya it was undoubtedly a significant force.47 Freidel, Schele, and Parker explain the, “Maya believed the universe to be a place filled with beings and forces that were dangerous and volatile if not contained by the proper rituals. They did not explain the movements of stars and planets through the heavens with the cool mathematics of orbital mechanics, but as living beings moving against the backdrop of a living cosmos.”48 Maya architecture connected to and celebrated the celestial bodies as they journeyed through the sky, and are oriented to “naturally significant rising and setting positions of the celestial bodies,” and more “sophisticated alignments patterns referred to other celestial events, such as heliacal rises of certain bright stars, or sunrises or sunsets at certain moments of

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38 Ibid., 275.
40 Girard, Los Chortis ante el problema maya, 463.
41 Girard, Los Chortis ante el problema maya, 463; Aveni, “The Role of Astronomical Orientation in the Delineation of World View,”

268. Aveni says, “The time period of the calendar that becomes the focus of all the skywatching, aligning, and concomitant rituals is the period in the dry portion of the year, immediately preceding the rainy season.”
42 Girard, Los Chortis ante el problema maya, 461.
43 Ibid., 462-463.
44 Remington, “Current Astronomical Practices among the Maya,” 407-410. In late June the Pleiades rises in the middle of the night near 3:00 AM, and goes behind the sun when the rains begin, and then in November they indicates nighttime visible from 7:00pm until 6:00.
46 Milbrath, Star Gods of the Maya, 8.
48 Freidel, Schele, and Parker, Maya Cosmos, 113.
the tropical year.” Celestial events involving the sun, moon, planets, stationary positions, or movement from a stationary position were used for planning ritual activity such as bloodletting, accession, initiation of military campaigns, among many other events. Priests and rulers could coordinate celestial phenomena with ritual celebrations, plan in advance by rough predictions and perform them at the precise moment, enhancing their appearance as true perpetuators of the universe and the divine. For the Maya the celestial bodies impact realms of religion, agriculture, and politics, manifest in the landscape as markers of the celestial bodies’ positions and movements, as astronomical hierophanies in unique circumstances, exhibiting the symbolic play of light and shadow on buildings, and temporally as an organizing force in the timing of rituals and celebrations. The celestial bodies dynamically connect land, sky, and human activity.

**Orientation**

Construction of elaborate architectural structures charting the celestial bodies’ movement was supported by the “complex set of beliefs about the structure and functioning of the universe, sustained by the ruling elite,” who commissioned them. Characteristically Mesoamerica cities and buildings are slightly rotated clockwise from the cardinal directions, for example, south of east. Numerous theories speculate its underlying intention, and Sprajc proposes such orientations are related to the world directions’ symbolism and their complimentary activities and forces. Wet and dry seasons dominate the year’s cycle and intertwine with the celestial bodies’ symbolism: the moon and Venus as an evening star are associated with water, maize, and fertility, and related to the wet season and the western quadrant, while the sun, associated with drought, fire, and heat, are related to the dry season and the eastern quadrant. Tzotzil Maya have similar associations between the wet and dry season: the east is associated with heat, the dry season, and masculine forces, and the west is associated with the earth’s cooling off and feminine forces (discussed more in detail in the following paragraphs). Sprajc suggests building orientations in the east were used to record dates during the dry season and those in the west record dates in the wet season. Whether or not this is accurate, underlying these interpretations is the importance of building orientation and natural landscape features, such as hills and mountains used to indicate exact positions of the celestial bodies’ and their movement along a horizon, sometimes at 13 and 20-day sunrise and sunset intervals, which physically charts the ritual calendar in the landscape. Building orientation, in conjunction with natural landscape features, weaves together cities, celestial bodies, the ritual calendar, and agriculture, a practice persisting still today.

Throughout the Maya area evidence exists of ancient Maya communities indicating solstice and equinox alignments, initially with simple perishable markers, and later with elaborate constructions of structures and platforms for ritual performance. These structures, called E Groups, are comprised of one viewing platform situated west of three buildings, charting the solstice and equinox positions on the horizon. While sometimes referred to as observatories, understood in the modern sense, they most likely did not collect new celestial data, but charted the sun’s movements to indicate the agriculture phases. Constructed over 1700 years ago is the most famous E-Group complex at Uaxactun, Guatemala, composed of three linear west-facing

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51 Ibid., 549-550.
53 Ibid., 308.
54 Ibid., 307.
55 Ibid., 309.
56 Ibid., 304.
structures and a radial observation platform located about fifty meters to the west (Figure 4.03). The sun’s movements were observed and recorded from the radial platform while looking east. Although a bit off center, on the equinox the sun rises from behind the Temple II, the middle structure, on summer solstice, the sun rises from behind the northernmost corner of Temple I, the north structure, and on winter solstice, the sun rises from behind the southernmost corner of Temple III, the south structure. Because the sun’s movement is very slight near the solstices, its daily change is quite small and for an extended period the sun rises in a generally similar direction, however, closer to the equinox positions, the sun changes more day to day and more noticeably along the horizon.

Buildings designed and dedicated to Venus can be found at Chichen Itza, Mayapan, Paamul, Tulum, Uxmal, Copán, and Cerros. At Chichen Itza, Mayapan, and Paamul observatory windows are believed to have aligned with Venus’ most northerly and southerly extremes. Tulum’s easternmost structure is small and round, associated with Quetzalcoatl, linking it to Venus, and most likely an observatory for Venus’ movements. Uxmal’s buildings are more or less similarly oriented, except the Governor’s Palace, skewed upon its own platform facing the southeast. According to Aveni, “Viewed from the doorway of the Palace, Venus would have been perched precisely atop the mound (Nohpat) when it (Venus) made its first appearance in the southeastern sky at the time of the great extreme.”

Nohpat, a group of ceremonial structures in the far distance, appears to deliberately reference and mark Venus’ position on the horizon. Sprajc, not convinced by merely the connection to Venus’ horizon position, believes Venus as an evening star in its most northern position, indicated the rainy season, and “can be viewed as a monumental materialization of a direction that must have been sanctified, because it marked the phenomena whose timely occurrences, conditioned crucial annual climatic changes and, consequently, a proper development of agricultural cycle, were vital for substance,” What Sprajc emphasizes are the symbolic connections accompanying physical phenomena, which like Venus, was not only an animated deity, but indicated the arrival of rains, a celestial phenomena the Maya kings and priests surely highlighted, ensuring their community’s agricultural success and strengthening their role as ruler.

Solstices, Equinoxes, and Zenith Passages

Solstices and equinoxes occur on the same day independent of latitude, however, the zenith positions are site dependent and extremely important for the Maya agriculture cycle, indicating the arrival of the rainy season and planting phase. In many contemporary Maya communities the solstices are transitional points, described as a “change of paths,” and the equinoxes represent the heating up or the cooling off of the earth in relation to the sun intensity and length of daylight. Milbrath explains the Tzotzil Maya combine seasonal shifts with the cardinal directions: east is the time from the winter solstice until spring equinox when the earth heats up,
there is a “sun sky,” and is associated with heat and masculine qualities; north is the time from spring equinox until summer solstice representing the arrival of the rainy season and growing plants; west is the time from summer solstice until autumn equinox indicating the earth’s cooling off, and death and feminine forces; and south is the time from autumn equinox until winter solstice, the time with the least amount of sunlight marking the close of the agriculture cycle. For the Ch’orti’ Maya the spring equinox signals the first phase’s last task in preparing the field, the “burning” before planting begins. During this time the sun is described as “gathering force, warming up more and more, getting hotter each day,” and “running” from its northern position, demonstrating the sun’s movements are not equal along the horizon, but increase as they move away from the solstice position.

Zenith passage is the most important agricultural sun position for most Maya communities, and for the Ch’orti’ Maya it is when the sun is directly overhead, “in the middle of the world,” and in the proper position to fertilize the earth. Together the Pleiades, Orion, and the sun’s position indicate the zenith passage and timing for the most important Tzolk’in celebration, the “Festival of the Cross” which begins five days before the zenith passage. Zenith positions vary per latitude, differing per region, however the first zenith passage is of utmost importance, at least symbolically, indicating the arrival of the rainy seasons and the beginning of the planting season. In northern latitudes the duration between the two zenith passages is shorter, and in southern latitudes it is longer, providing an extended growing season and second round of planting, which coincides with the second zenith passage, late July in the northern Yucatan and mid-August in the southern Maya area. Zenith passage brings the rainy season associated with the moon goddess, who is also a water goddess, as previously mentioned, holding a big jar which she pours over the land continuously for six full moon cycles, nearly 180 days.

The Kaqchikel Maya distinguish the dry and wet seasons by which quadrant the moon and sun are in. During the wet season the sun moves from east to northwest and the moon moves from east to southwest, while during the dry season they exchange, and the moon moves from east to northwest and the sun moves from east to southwest. The summer solstice is associated with the maximum rainfall, the second zenith passage brings another round of intense rainfall, and then the sun begins “its quick race” back to the winter solstice, a “portal” or “corner post of the world.” The sun’s movements and positions along the horizon, relative to the stars’ and moon’s position, indicate specific phases of the agriculture cycle, connected with symbolic and physical descriptions of the earth, its qualities, heating and cooling, fertility and drought, and increased and decreased sunlight and energy. The agricultural cycle, like the moon and sun, are assimilated to the Maya conception of human life.

Combined with the celestial bodies, contemporary Maya communities use the landscape and their body to chart time. Ch’orti’ Maya indicate the zenith with a gnomon or use of the body, knowing at midday it casts no shadow. Girard describes how many cities use the natural landscape, identifying specific places where the sun rises on winter and summer solstice, equinox, and zenith. In a diagram drawn by a Ch’orti’ priest, the temple is centered, the rising sun on winter and summer solstice is indicated by two cities’ directions, zenith is a straight line, and equinox

68 Ibid., 14-15.
69 Girard, Los Chortis ante el problema maya, 416-417.
70 Ibid., 417.
71 Ibid., 423, 445.
72 Ibid., 422.
73 Milbrath, Star Gods of the Maya, 13.
74 Girard, Los Chortis ante el problema maya, 423.
76 Girard, Los Chortis ante el problema maya, 426, 429, 430, 443.
77 Ibid., 445.
78 Ibid., 443-444.
falls between zenith and winter solstice; the sun’s movements are relative to the temple’s location and cities situated in the larger landscape.\textsuperscript{79} Temples and sacred places, anchored between visible zenith sunrise and sunset positions, create invisible lines in the landscape similar to the sun’s pathway directly overhead. In the city of Camotán, Guatemala, for example, a priest school uses an alignment with a cross on an observatory to indicate zenith passage, and similarly at another city, Tipacay, Guatemala, a monument situated on a mountaintop visible from far away, is placed in an opening of pine tree vegetation kept clear so the monument always remains visible.\textsuperscript{80} For the zenith passage sight lines are created in the landscape and built world, not indicating east or west, but the “middle of the world,” connected to the middle of the sky.

\textit{Astronomical Hierophanies}

A distinctive class of architectural phenomena from structures charting the celestial bodies’ movements, are structures manifesting celestial hierophanies. Physically distant, the celestial bodies’ presence is integral to the design of certain structures, making the divine present in the terrestrial realm. Eliade describes the phenomena of hierophany as the manifestation of the sacred in an object or event within the material world.\textsuperscript{81} Hierophany makes an object more than its mere physicality; it becomes a being, it is a “receptacle of an exterior force that differentiates it from its milieu and gives it meaning and value.”\textsuperscript{82} Manipulation of Maya architecture enabled the display of light and shadow within or on a building or monument, which very possibly also involved a king centered in illuminated space. The celestial bodies’ presence in architecture, like Venus, the sun, moon, and planets, generated the sensation of the divine being present and tangible in an earthly and human realm.

Chichen Itza’s Temple of Kukulkan, centered in the main ceremonial space, relies on the equinox sun to cast a profile shadow on the main balustrade, animating its descending plumed-serpent, Quetzalcoatl, giving the impression it is slithering down from the temple perched on top to the plaza (Figure 4.04). Its stairs, niches, and terraces create a solar and lunar calendar: each of the four sides has 91 steps from the plaza to the temple, and the step onto the upper platform totals 365 steps, one for each day of the solar year. Each of the pyramid’s four sides has nine terraces, divided by a stairway, equaling 18 months in a solar year, and on each angled face are 52 niche panels, the number of years it takes for both calendars to simultaneously complete their revolutions.\textsuperscript{83}

Several solar hierophanies occur at Palenque’s Temple of Inscriptions and Temple of the Cross. From the Royal Court Tower, the winter solstice sun descends behind the Temple of Inscriptions where K’inich Janab Pakal’s sarcophagus was placed, believed to symbolize and honor his descent into the underworld.\textsuperscript{84} When this same “dying” sun sinks behind the Temple of Inscriptions during the winter solstice, “a final beam of light enters the temple and illuminates God L, portrayed on the eastern doorjamb of the sanctuary.”\textsuperscript{85} This illumination is believed to symbolize a shift in power between rulers, from K’inich Janab Pakal’s to his son K’inich Kan Bahlam, under the dominance of God L.\textsuperscript{86} A similar scene occurs between the Temple of the Inscriptions

\begin{thebibliography}{99}
\bibitem{79} Ibid., 440.
\bibitem{80} Ibid., 444.
\bibitem{82} Eliade, \textit{The Myth of the Eternal Return}, 4.
\bibitem{83} Fuson, “On the Orientation of Mayan Ceremonial Centers,” 504.
\bibitem{84} Schele and Miller, \textit{Blood of Kings}, 269.
\end{thebibliography}
Figure 4.03. E-Group Uaxactun, Guatemala

Figure 4.04. Chichen Itza Temple of Kukulkan
and the Temple of the Cross when the summer solstice sun sets, sinking behind the Temple of the Inscriptions, and passing into a western window and out an eastern window, allowing sunlight to project onto the Temple of the Cross’ upper terrace, where a stela once stood believed to have portrayed K’inich Kan Bahlam. The shifting of power on the solstices, demonstrated here through a solar hierophany, reiterates the idea kings, representative of the sun, likewise shifted or transition political powers. Several more solar hierophanies occur inside the Temple of the Sun, and will be discussed at the end of this chapter.

The Maya observe their world, buildings, landscape, natural features, and celestial domain to tell time, indicate future climatic phenomena, and coordinate and plan activities, remaining flexible and making adjustments to take advantage of optimal times. For example the Ch’orti’, Kaqchikel, and K’iche Maya use the celestial bodies and ritual calendar to determine appropriate times for the agriculture cycle, but fine-tune it with the moon: Ch’orti’ Maya begin planting with the crescent moon, K’iche Maya plant by the calendar and harvest after the full moon, and the Kaqchikel Maya beginning planting on the moon’s third day. Symbolic meanings influence practical decisions and are commonly integrated into physical designs and buildings’ sitings and orientations, in particular those with celestial hierophanies. Today we can be extremely precise and rigid with our measurements and terminology, but we must be cognizant, the Maya do and did not decide timing exclusively with one factor, be it the calendar, sun, moon, or stars but a myriad of forces. The celestial bodies’ various qualities shift throughout their cycles, and on dates such as the summer or winter solstice, phenomena occurring could actually last several days or weeks, not just one day, because the sun and other celestial bodies’ positions sometimes shift ever so slightly. Physical orientations and alignments commonly have symbolic significance attached, although more difficult to discern, creating a thickly layered landscape, built world, and celestial realm.

4.2 Yaxchilán’s Celestial Connections

Yaxchilán, an early astronomical observation center, has a 360-degree view of the horizon from the tallest hilltops. Several interpretations have been proposed for what the area’s polity name meant, but the agreed interpretation for its emblem glyph is, “holy lord of split sky.” The emblem glyph contains the cleft symbol and the “split device (the cleft symbol) undoubtedly represents a portal for the birth or rebirth of deities in Maya iconography…yet the earliest examples…do not emphasize these supernatural gateways so much as the idea of division and breakage.” Another possibility of the cleft symbol, from the dictionary, is “to dawn” interpreted as “breaking of the horizon,” or “cracking of dawn.” Furthermore, the cleft symbol could be associated with the sun rising from a cleft formed by the two tallest hilltops on the eastern horizon.

When experiencing Yaxchilán today, the overgrowth of trees and vegetation prevent clear viewing of the site, the river, and surrounding area, even from the highest buildings, a contrasting experience to Yaxchilán during its inhabitation. Today, the experience of Yaxchilán is internal, mystical, not connected to the larger extended landscape, and difficult to perceive connections between buildings, with the horizon, or celestial bodies, demonstrated in the panoramas.

89 Girard, Los Chortis ante el problema maya, 452-463.
90 Tate, Yaxchilán, 4-5. Bonampak and Yaxchilán are oriented in the same way. It is believed Bonampak oriented its plan to that of Yaxchilán even though it was 24 km away. There was potential visual communication between Bonampak and Yaxchilán via the ridgeline between them.
92 Ibid., 6.
93 Ibid., 6.
94 Tate, Yaxchilán, 113-114.
The first image, in front of Structure 18 and on top of the elevated platform, is looking east over the Great Plaza, with SB 17 on the left, Structure 16 beyond the sweatbath, the ball court on the left in the distance, and barely distinguishable on the right, the first terrace above the grade of the Great Plaza (Figure 4.06). The second photograph, a view in front of Structure 40 and 41, buildings on Yaxchilán’s highest point, is full of dense trees disguising the severe drop and sets of terraced stairs descending into the deep ravine leading to the Great Plaza (Figure 4.07). The third photograph, in front of Structure 33, looks down the Great Stairway’s steep descent at the Great Plaza, intermittent with landings, stelae and altars punctuating its descent (Figure 4.05). While not obvious, each of these photographs generally faces towards a solstice sunrise. The first photograph, facing N118° E, is 4° south of where the winter solstice sun rises, and the second and third photographs, facing N54° E, are approximately 11° north of where the summer solstice sun rises.

Located at 16°54’ N and 90°58’ W, Yaxchilán has a northwest to a southeast orientation, and Andrews commented, “there is very little consistency in the orientation of various buildings and no real effort to recognize the cardinal points of the compass,” and while he was somewhat correct because the city as a whole has its anomalies, imperfections, unique arrangements and several different orientations, lying latent in Yaxchilán’s landscape are two distinct building orientations, one generally towards the summer solstice and one towards the winter solstice (Figure 4.01). Buildings facing in the general direction of the winter and summer solstice and artifacts with celestial references, situate Yaxchilán’s sweatbaths among a ritual landscape linked to the celestial bodies.

The Debate About Yaxchilán’s Orientation

Scholars debate about whether or not Yaxchilán is oriented towards the summer and winter solstice. Tate published Yaxchilán: the design of a Maya ceremonial city in 1992 detailing building orientations, alignments, solar hierophanies, and celestial references she believed to represent a celestial landscape. Later, Iwaniszewski and Galindo Trejo, retested some of her findings, in particular buildings she claimed were oriented to the summer solstice sunrise, such as Structure 33, where a solar hierophany was said to illuminate a statue inside (Figure 4.27). Disputing her claim, Iwaniszewski and Galindo Trejo state, “the angled trajectory of the sun does not allow for direct illumination of the statue’s front, thus we must doubt the intentionality of the Maya architects to highlight the solstice,” and furthermore they discredited three other structures she claims aligned to the summer solstice because their field measurements differ, although less than 5°. In their conclusion they write, “alignments of several buildings do not align with the summer solstice sunrise. Thus, it topples one of the most important arguments in favor of Yaxchilán’s solar organization.” Iwaniszewski and Galindo Trejo are correct, stating sunlight does not enter the structure directly on summer solstice, and my analysis shows the sun never moves north enough to directly enter the structure, the smallest differentiation being 11° and therefore, always only partially illuminating the statue. According to Tate, “Inside the temple, the sun struck the only carved-in-round stone statue at the site, a twice-lifesize portrait of Bird Jaguar IV seated crosslegged in a niche created by transverse buttresses in the rear wall of the structure. The sun illuminated the statue of Bird Jaguar for approximately seven minutes. The phenomena has been observed two days before and two days after the actual solstice, and it could extend a few more days, but I cannot attest to it.” While Tate actually never states the sun enters directly and she

95 Andrews, George F. Maya Cities: Placemaking and Urbanization 2nd Ed. (Norman: University of Oklahoma Press, 1977), 53, 140-146. The corners of the Temple of Kukulkan are not at 90 degrees, and anomalies like this are common.
97 Ibid., 20.
98 Tate, Yaxchilán, 114.
Figure 4.05  View from Structure 33 down Great Stairway

Figure 4.06. View from Structure 18 east over Great Plaza facing general direction of winter solstice

Figure 4.07  View from Structure 40 and 41 facing general direction of summer solstice
Figure 4.08. Aerial photograph of sunrise and sunset orientations on winter solstice, Great Plaza [public domain]

Figure 4.09  Aerial photograph of sunrise and sunset orientations on summer solstice, Structure 33 [public domain]
Figure 4.10. Drawing of sun angles throughout the months of the year, Structure 33

- 5:32am: N65°E
- 5:41am: N68°E
- 5:36am: N72°E
- 5:49am: N77°E
- 5:53am: N89°E
- 5:58am: N101°E
- 6:11am: N110°E
- 6:29am: N114°E

- summer solstice sunrise
- May/July
- zenith passage sunrise
- April/August
- equinox sunrise
- February/October
- January/November
- winter solstice sunrise

Figure 4.11. Map of chronological order of Yaxchilan’s celestial development. Utilized Ian Graham’s 1977 map after John Bolles’ map of 1931 as base map

Lighter colors indicate earlier phases and darker colors are later phases.
does provide the correct sunrise angle and building angle in her text, the problem lies in her
drawings and photograph showing the statue fully illuminated. Garcia Moll, the lead archae-
ologist for Yaxchilán’s main excavation, and Tate have discrepancies between several building
orientation however, once in the field with worn away facades and the stacked stone walls’ rough
edges a few degrees difference becomes comprehensible, and it is necessary to measure internal
and external angles and walls to achieve the highest accuracy.

Aerial photographs with sunrise and sunset angles of the solstices, equinoxes, and ev-
ery month, indicate the sun’s movement throughout the year, revealing the two major building
alignments Tate initially claimed, are apparent and very close, although not perfectly aligned, to
the direction of the sunrise on summer and winter solstice (Figure 4.02, 4.08, 4.09). The summer
solstice rises at an angle of N65°E, and Structure 33 is N54°E, Structure 40 is N55°E, and Structure
41 is N54°E, thus each is more or less 10-11° north from the summer solstice sunrise. The Great
Plaza, where most of the buildings are located, has many structures oriented more or less N118°E
and the winter solstice sun rises at N114°E, a difference of roughly 4°. Interestingly both align-
ments are degrees further than where the sun ever reaches. As seen in the aerial photographs,
the difference for both orientations is apparent, but not significant, and in stepping back from the
close-up plans, and looking at general alignments, I believe it becomes more convincing these
buildings were intended to generally align towards the winter and summer solstice sunrises.

Iwaniszewski and Galindo Trejo’s analysis of Structure 33 was an impetus for an inves-
tigation about yearly sunrise angles in relation to Structure 33. Sunrise and morning sunlight
strikes the façade at all times of the year, obliquely in the winter months and more directly as the
sun moves further north in the summer months, reaching the summer solstice (Figure 4.10). On
the winter solstice sunlight strikes the eastern corner of the main entrance and the entrance wall,
but fails to penetrate the interior chamber, a similar pattern of shadow and light for the shouldering
months of January, February, October, and November. By mid-March, at spring equinox, the
sunlight begins to enter as a small sliver of angled light, illuminating the wall and exterior corner
where the statue is located, and by mid-May the statue becomes partially illuminated, coinciding
with the arrival of the wet season in late May - early June. A portion of the statue remains illu-
minated until August, as the sunlight retraces its steps back out of the niche to the exterior cor-
ner, and by the end of October, the close of the Tzolk’in, sunlight would not enter the structure’s
interior, but only penetrate the entrance’s wall, how it began. I believe this suggests the statue’s
illumination may have been connected with the agricultural cycle, indicating the arrival of the
rainy season with the statue being partially illuminated from May until July and the niche from
March until September.

Why the building is not oriented precisely to the summer solstice sunrise and why the
statue is never fully illuminated by the sunrise is unknown. However, when situating this exam-
ple within other solar hierophanies, such as those at Palenque previously described and to be de-
scribed at the end of this chapter, sunlight often enters at angles, not always directly, and at times
it enters one corner and extends into the opposite corner. Provided these findings, I believe Iwan-
iszewski and Galindo Trejo were incorrect to dismiss Tate’s overall building alignment theory
and failed to realize any potential relationships between the sunlight and statue. I believe, based
upon aerial photographs and sunrise and sunset positions, Yaxchilán is oriented toward the sol-
stice positions, although not perfectly but skewed several degrees, and I believe from the analysis
of Structure 33, the statue’s illumination has a connection with the duration of the agricultural
cycle and not just the summer solstice. Based on this, I proceed into the following descriptions
of Yaxchilán’s evolution and the sweatbath’s siting within, what I believe to be a landscape with
celestial connections.

99 Ibid., 113.
Yaxchilán Evolution and its Celestial Setting

In an analysis of the buildings, ten buildings generally align towards the solstices: seven face the winter solstice and three face the summer solstice. Winter solstice buildings are throughout the Great Plaza’s open flat space, particularly the western end where some of the first buildings were constructed, and in contrast, three summer solstice buildings are on elevated hilltops with monumental stairways leading up to their hilltops. Winter solstice buildings are collectively grouped in the flat Great Plaza and summer solstice buildings are individual and removed to high hilltops where a view of the eastern horizon is not interrupted. Chronology of solstice facing buildings is constructed utilizing Garcia Moll’s archaeological data defining seven stages of development (Figure 4.11). Initial buildings were constructed aligning with the winter solstice, gradually increasing in the Great Plaza throughout six different stages, while the first building aligning towards the summer solstice was Structure 41, in the middle of Yaxchilán’s history, and the remaining two buildings, Structure 33 and 42, were some of the last constructed at Yaxchilán.

Permanent construction at Yaxchilán began late in Stage 2 around 500 AD, continuing for approximately the next 350 years until the end of Stage 7 (Figure 4.11). Stage 2 (238 AD – 554 AD) involved the erection of Structures 7, 77, and 78 on the Great Plaza, with Structure 77 and 78 facing each other on the western end, perpendicular to the winter solstice. Structure 7, built in the center of the Great Plaza, is perpendicular to the winter solstice. During Stage 3 (554 AD – 613 AD), Structure 18 was placed between Structure 77 and 78, creating an intimate plaza typical of Maya settlement patterns with a fourth side open to the Great Plaza and winter solstice. Structure 18 anchors the Great Plaza’s western end, establishing the winter solstice orientation, which later structures responded to, even though, today Structure 18 is unexcavated, covered in trees, and goes unnoticed (Figure 4.12). In addition, Structure 6, 13, and 74 were erected in the central portion of the Great Plaza, and Structure 13 bisects the plaza and faces towards the winter solstice (Figure 4.13).

In Stage 4 (613 AD - 672 AD) the first summer solstice building, Structure 41, was constructed on Yaxchilán’s most prominent hilltop, overlooking the deep ravine and along the same ridgeline other structures were constructed (Figure 4.20). Its placement differentiated winter solstice building patterns from summer solstice buildings patterns: private hilltops versus the flat ceremonial plaza. Structure 41, elevated far away and removed from the ceremonial core, is located within its own private plaza with a few adjacent structures, a pattern established and followed by the two later summer solstice buildings. Structure 12 was also constructed during Stage 4 in the Great Plaza with the other two previous winter solstice facing structures, and winter solstice building patterns continue to emerge (Figure 4.14). They are located collectively in the Great Plaza’s flat open ceremonial space and facing the winter solstice, even when it means turning away from adjacent structures and internal courtyard spaces.

Two of the Great Plaza’s most important ceremonial structures were constructed during Stage 5 (672AD - 731AD): Structure 14, the ball court, and Structure 19, the Labyrinth (Figure 4.15, 4.16). Their placement shifted the larger public ritual space towards the western end, while the small, subdivided ceremonial space around Stela 1 continued to be defined, and in Stage 6 this small ceremonial space became the intersection for the winter and summer solstice (Figure 4.23).

100 Garcia Moll, Roberto, *La arquitectura de Yaxchilán*. (Mexico City: Instituto Nacional de Antropología e Historia, 2003), 337-357. It is impossible to known the exact evolution of the site. Many buildings that were perhaps present were later destroyed and buildings of biodegradable materials leave little to no remnants.

101 Tate, *Yaxchilán*, 112. Garcia Moll, *La arquitectura de Yaxchilán*, 337-357. According to Tate Structure 12 and 41 were the earliest known solstice facing structures constructed. This suggests that both the winter and summer solstice were established at the same time. However, her data differs from Garcia Moll’s developmental timeline. His timeline states that Structure 12 and 41 were constructed during Stage 4, 613-672AD, however, Structure 13 and 18 were constructed earlier during Stage 3, 554-613AD, and both faced the winter solstice. Tate’s book on Yaxchilán was published in 1992. She was aware of Garcia Moll’s research and references some of his findings that had yet to be published. However, the fact that his book was published afterwards, would perhaps provide her with a different interpretation or understanding about some specific details.
Stage 6 (731 AD - 790 AD) was Yaxchilán’s most prolific time in history and the last stage of any solstice structures or important buildings’ construction. Bird Jaguar IV, ruling during Stage 6, felt pressure to prove his legitimacy to the throne, therefore, assimilating Yaxchilán’s past rulers, he constructed many structures aligning toward the solstices, including the sweatbaths. Four new solstice structures were constructed: two facing the winter solstice, Structure 16 and 24, and two facing the summer solstice, Structure 33 and 40 (Figure 4.17, 4.18, 4.21, 4.22). Structure 16 and 24’s architectural design reinforces their alignment to the winter solstice; the lintels are only engraved on the outside edge, illuminated by the winter sunlight (Figure 4.19).

Bird Jaguar IV constructed Structure 33 and Structure 40, both summer solstice facing buildings, on the hilltops overlooking the Great Plaza. Constructed at the top of a very steep ascent south of the Great Plaza is Structure 33 with only its roofcomb visible, and likewise Structure 40, constructed adjacent to Structure 41 far south of the Great Plaza, is elevated high upon a hilltop (Figure 4.24). Structure 33 is one of Yaxchilán’s most elaborate structures, if not the most, and its proximity to the Great Plaza allowed for a short, but grand processional route between it and the Great Plaza. Structure 40 and 41 overlook, from a distance, the Great Plaza’s Subplaza C, and its processional route up through the ravine would have been much longer than Structure 33’s, gradual at first and very steep at the end.

Solstice Sections

During the middle of Yaxchilán’s development the winter and summer solstice facing buildings had established different spatial, topographic, and ritual narratives. Plans convey a certain degree of information, however, sections illustrate spatial and topographical relationships between the structure and landscape, providing scale for actual distances, lengths of views, and highlight how, in the vertical scale, these axes ceremonialize sacred space, punctuated with artifacts, or the lack thereof. Section A illustrates the winter solstice axis beginning north of Structure 18 and coursing the length of the Great Plaza, Section B illustrates the summer solstice axis descending down from Structure 33 to the Great Plaza, and Section C shows the summer solstice axis from Structure 40 extending down and through the ravine to the Great Plaza (Figure 4.28, 4.29, 4.30).

Section A illustrates the winter solstice axis beginning north of Structure 18, anchoring the Great Plaza’s northwestern end, upon where originally a stela was located (Figure 4.28). It descends down the short terrace into the open plaza space defined by SB 17, the labyrinth, the ball court, and several winter solstice facing buildings, before passing the ball court and a small, subdivided ceremonial space centered with a stela, and surrounded by the most elaborately carved lintels and SB 10. East of Structure 6, one of the oldest structures with an impressive roofcomb intact, is the ceremonial space, Subplaza C, with a stela centered in the ceremonial space and a site line to Structure 40 and 41. The winter solstice axis continues through another ball court and beyond, but no important buildings contribute to its importance, and the axis fades out as the plaza changes its orientation. The winter solstice axis has many important ritual structures and artifacts defining and centered in a variety of ceremonial spaces throughout its Great Plaza’s length. While some structures are more important than others, one does not dominate the axis, and instead each group of buildings creates a different plaza setting, accommodating different rituals’ needs.

102 In the design of sacred structures concealing the object before revealing it is common. At the Lincoln Memorial there is a time when you can see Lincoln and then he disappears out of sight during the ascent. When you are almost to the top, he reappears. This similar experience also occurs at the Parthenon in Athens.

103 When at the site, the descent into the ravine from Structure 40 and Structure 41 was completely covered in vegetation and the stairs were not even visible. It is hard to known what the view would have been like. In looking at the map and sections, without the vegetation the topographic change would have made for an incredible view up to the hilltop and conversely down to the Great Plaza.
Section B shows the summer solstice axis beginning at Structure 33, elevated on a terrace with hieroglyphic stairs, facing the small ceremonial space, and centered by a carved cave stalactite called the “navel,” most likely from one of the nearby caves (Figure 4.25, 4.26, 4.29). While not perceivable in plan, the Great Stairway accommodates very steep topography down to the plaza, making the nearly twenty-five meter descent possible. At the bottom of the Great Stairway yet still above the Great Plaza is a landing with stelae and altars, and in the Great Plaza’s center is an important stela surrounded by altars, one in the shape of a crocodile. Both sides of the stela, a period-ending marker, has images: a warrior on the riverside and a bloodletting scene and frontal sun monster on the temple side, facing Structure 33.104 Anchoring the northern side of the plaza is Structure 9, still unexcavated, but upon where Stela 27, Yaxchilán’s oldest stela, was placed.105 This axis is composed of a single structure upon a hilltop, a grand stairway connecting it to the public ceremonial space, and stelae and altars extending the axis through the flat plaza.

Section C shows the summer solstice axis beginning at structure 41, the farthest building from the Great Plaza, positioned on Yaxchilán’s highest hilltop (Figure 4.30). Elevated on a terrace with three altars and three stelae in front, its axis descends down the steep terraced eighty-meter hillside into a ravine and flattens out as it approaches the Great Plaza. The first structure along the axis is Structure 20, sitting on the first terrace with four stelae and one altar in front, a stela and altar centered in this subdivided ceremonial space, and on the northern side is Structure 5, a platform structure with hieroglyphic stairs leading up to its summit.106 Similar to Section B, this summer solstice axis has a structure perched upon the tallest hilltop, overlooking the entire surrounding area, with a long processional route down a steep ravine, joining the Great Plaza’s ceremonial space, and terminated with hieroglyphic stairs and the river beyond.

Winter versus Summer Solstice

These plans and sections demonstrate differences between the winter and summer solstice. Anchored by the mythological mountain and reinforced by the six other ritual structures facing the winter solstice, the winter solstice axis is flat, creating a wide linear corridor subdivided into smaller ceremonial spaces where people most likely gathered during important rituals. More restricted and private in nature, summer solstice axes originate from a few select buildings elevated upon high hilltops, punctuated with stelae, altars, hieroglyphic stairs, and topographic changes, emphasizing their ritual importance.

The ritual narratives recorded on winter solstice buildings and artifacts describe events honoring and evoking the ancestors and narrating past rulers’ ceremonies, which occurred on similar celestial anniversaries.107 The summer solstice narratives describe events of birth, bloodletting, accession to the throne, and warfare, which likewise coincided with past dates of unique celestial phenomenon.108 The winter solstice narrative and landscape is collective like the ancestral lineages, and the summer solstice narrative and landscape is individual, rare, and unique like the kings who built them.

Celestial References on Artifacts

There are abundant artifacts (monuments) at Yaxchilán with references to the celestial bodies and their movement. Moon signs are found in conjunction with rulers’ mothers, and sun signs are found with rulers’ fathers. Ancestor cartouches are found in the upper register of cosmological stelae and on ball court markers.109 Skybands are border like images, framing larger

104 Tate, Yaxchilán, 226.
105 Ibid., 162.
106 Ibid., 155-156.
107 Ibid., 114.
108 Ibid., 114.
109 Ibid., 59-62.
Figure 4.12 Winter solstice building, Structure 18

Figure 4.13 Winter solstice building, Structure 13

Figure 4.14 Winter solstice building, Structure 12
Figure 4.15. Winter solstice building, Structure 14-ball court

Figure 4.16. Winter solstice building, Structure 19

Figure 4.17. Winter solstice building, Structure 16
Figure 4.18. Winter solstice building, Structure 24

Figure 4.19. Winter solstice building, Structure 16 carved lintel on front side only. This side faces the winter solstice.

Figure 4.20. Summer Solstice building, Structure 41
Figure 4.21. Summer solstice building, Structure 40

Figure 4.22. Summer solstice building, Structure 33 with cave stalagtite

Figure 4.23. Great Plaza, Stela 1

Figure 4.24. Great Stairway
Figure 4.25. Carved cave stalactite in front of Str. 33

Figure 4.26. Carved cave stalactite in front of Str. 33

Figure 4.27. Stone sculpture inside Str. 33
Figure 4.28. Section A, from Structure 18 through Great Plaza

Figure 4.29. Section B, from Structure 33 down to Great Plaza and river

Figure 4.30. Section C, from Structure 41 down to Great Plaza and river
images, and contain symbols for the heavens, darkness, and the moon, and are found on stelae and ball court markers.\textsuperscript{110} There are eight lintels, stelae, and hieroglyphic stairs, which record and depict flaphaft rituals, its ritual passing from one king to the next, and the encompassing rituals which occur on summer solstice dates.\textsuperscript{111}

Yaxchilán is an ancient ceremonial city whose ritual landscape, connected to the celestial bodies’ movements, has two dominant orientations: one towards the winter solstice and one towards the summer solstice. When mapped and drawn in section, these narratives become more profound, transcending Yaxchilán’s latent landscape into a tangible expression, engaging the celestial bodies and their natural phenomena. Furthermore, when the artifacts in these collective areas are analyzed, the events recorded further reinforce the underlying meanings of the summer sun and the winter sun, and are coordinated with important historical rituals and unique celestial phenomena. In composition these distinct layers together create a dynamic landscape, that while not very accessible or legible for the modern inhabitant, Yaxchilán was most likely a highly charged and profound landscape, shifting between its extremes ritually, seasonally, and celestially.

4.3 Yaxchilán’s Sweatbaths

Mapping buildings perpendicular to the solstices identified seven more structures, all aligning with the winter solstice, totaling seventeen structures, with six in the Great Plaza and one in the Small Acropolis, Structure 51.\textsuperscript{112} SB 10 and SB 17’s facades are perpendicular to the winter solstice, even though in plan their orientations appear more significant than they are.\textsuperscript{113} All three sweatbaths were constructed during Stage 6 (731AD - 790 AD), and both SB 10 and SB 17 are in the main ceremonial space referencing the winter solstice, however each sweatbath’s immediate setting is quite different. SB 10, in a small, subdivided space where the winter and summer axes intersect, is located next to Structure 13, one of the first winter solstice facing structures. SB 17, located in the largest ceremonial subplaza, is near Structure 18, the labyrinth, ball court, and important ritual structures. SB 48, located on the Small Acropolis, does not align with either solstice, nor any buildings around it, except Structure 51. All three sweatbaths, in particular SB 10 and SB 17 and their immediate surroundings, can further the understanding of the celestial influences and the celestial narratives.

Sweat bath 10

Located within the Great Plaza’s Subplaza B on an L-shape terrace it shares with Structures 13 and 74, is SB 10, removed from buildings to the west because Structure 13 intersects it on the northwestern corner, preventing visual and physical connectivity to them (Figure 4.31, 4.32, 4.33). There is however, a shared passageway between Structure 13 and SB 10, allowing limited access to the western side, yet both buildings’ doorways face inwards towards Subplaza B, focusing their attention on that space.

SB 10 is uniquely situated near the intersection of the solstices with four structures facing

\textsuperscript{110} Ibid., 62.
\textsuperscript{111} Ibid., 94-96.
\textsuperscript{112} It is acknowledged that present orientations might not be what was established when the buildings were first built. The Maya rebuilt and added on additions frequently, sometimes changing the previous orientations of buildings. We use how the city was left. Once again, the same range was applied and any building within 5 degrees of the orientation was included. The range for those buildings perpendicular to the summer solstice is 144 (139-149) and 324 (319-329). The range for the buildings perpendicular to the winter solstice is 28 (23-33) and 208 (203-213) for the winter solstice. While one degree here or there isn’t much in the field for integrity sake I adhered to this range, even though some buildings might have been included if the range was 1-2 degree more. If I increased the range to 8 degrees in each direction, an additional 22 buildings would be included. I tried to be more restrictive. If the exact orientation of a building was not known or could not be measured, they were not included.
\textsuperscript{113} The plan drawn by Bolles has several buildings oriented in a slightly incorrect way. This makes the alignments seem incorrect. A corrected map was drawn and used.
the winter solstice, four perpendicular, and nine not conforming to any orientation; almost half of Subplaza B’s buildings generally align with the winter solstice. SB 10 is located in a visibly dominant winter solstice area, although the alignments are less than Subplaza A because the plaza shifts slightly where it is bisected by the summer solstice axis descending down the Great Stairway into the ceremonial space. Lined with stelae, altars, and many buildings with carved lintels, this space converges around Stela 1, carved on all four sides.\textsuperscript{114}

Meaningful relationships exist between the lintels of SB 10 and Structure 13, physically joined together, although Structure 13 was constructed 120-250 years earlier. Together their lintels record important rites of passage, such as birth and accession to the throne, synchronized with the celestial bodies.\textsuperscript{115} SB 10 has three hieroglyphic lintels commissioned by Bird Jaguar IV recording moon cycles, Bird Jaguar IV’s birth, and his accession to the throne, while Structure 13 has three pictorial lintels, two with definite dates referring to the celestial bodies’ movements.\textsuperscript{116} Lintel 32 (Structure 13), the middle lintel, was commissioned by Bird Jaguar IV to commemorate a real or fictitious past, “ceremony performed during a stationary conjunction of Jupiter and Saturn, a ceremony in which Lady Kabal Xook was the co-protagonists with Shield Jaguar.”\textsuperscript{117} Lintel 33 (Structure 13) depicts a flappstaff scene, occurring near a summer solstice, indicating a change in responsibility and power, symbolized by the solstice sun as it shifts in its course and navigates back towards its other extreme.\textsuperscript{118} The notion of transitioning power “cargo” still exists in contemporary Maya communities, as Girard explains:

The rituals concerning the seasons of the year function on several levels of the society: celestial, political, and agricultural. The rituals of summer and winter solstice involve the positioning of a statue, or idol, in one of two temples. The Ch’orti’s know that summer solstice is the day that the sun reaches its northernmost declination in the sky, and that on winter solstice the sun is furthest south…they duplicate this celestial division of the year through a ceremony in which an idol (obviously signifying the sun) is carried from a southerly temple to a northerly one on winter solstice and back again on summer solstice.\textsuperscript{119} The kings portrayed themselves as the sun and therefore, they too emphasize their shift in power on the solstices, and abundant artifacts throughout Subplaza B depict accession rituals coinciding with past rulers’ ceremonies and celestial movements. What resonates about Subplaza B, where Structure 10 is located, is how it evokes an awareness of continuous shifting between two extremes, a place of convergence, a center or middle point, and an intersection between the two. Sweatbath 10’s lintels are carved, the only Yaxchilán sweatbath with carved lintels, which describe a rite of passage.

\textit{Sweatbath 17}

Located on the western end of the Great Plaza where the winter solstice dominates is SB 17, near six buildings facing the winter solstice, four perpendicular to it, and seven structures, on the north and south extremes not conforming (Figure 4.34, 4.35, 4.36). Nearly two thirds (10/17) of the structures generally align with the winter solstice, and SB 17 is in close proximity to the most important ceremonial structures in this area, which face the winter solstice. SB 17 is located near Structure 18, Yaxchilán’s only pyramidal structure, and it is highly probable Structure 18

\begin{itemize}
  \item Tate, \textit{Yaxchilán}, 134. Two figures are in profile on the stela’s narrow sides. A warrior is on the river side and a bloodletting scene is on the temple side. On the same side in the, “lower register is a frontal monster, in the seated posture of the king, and holding a double-headed skeletal serpent bar.”
  \item Garcia Moll, \textit{La arquitectura de Yaxchilán}, 343-345. Stage 3 is from 554-613AD and Stage 6 is from 731-790AD.
  \item Tate, \textit{Yaxchilán}, 163-165, 171-173.
  \item Ibid., 173. Bird Jaguar IV often replicated past rulers artifacts, buildings, and ceremonies in order to link him to the ancestral lineage. It is not always known how much is actually real or fictitious.
  \item Girard, Rafael, \textit{Los Maya: su civilización, su historia, sus vinculaciones continentals} (Mexico City. Libro Mexico, 1966), 121.
\end{itemize}
Figure 4.31. Map of Great Plaza, SB 10 with celestial alignments. Based upon Ian Graham’s 1977 map after John Bolles’ map of 1931 as base map.

Figure 4.32. SB 10 on elevated terrace next to Str. 13

Figure 4.33. Str. 13 on elevated terrace
Figure 4.34. Map of Great Plaza, SB 17 with celestial alignments. Based upon Ian Graham’s 1977 map after John Bolles’ map of 1931 as base map.

Figure 4.35. SB 17 and Str. 16 looking towards winter solstice

Figure 4.36. Str. 16 facing towards winter solstice and away from SB 17
Figure 4.37. Map of Great Plaza, SB 48 with celestial alignments. Based upon Ian Graham’s 1977 map after John Bolles’ map of 1931.

Figure 4.38. SB 48 from south view

Figure 4.39. SB 48 from small plaza in front
influenced SB 17’s orientation and numerous other buildings in the Great Plaza, and a wide corridor was respected throughout the Great Plaza’s length where no buildings were constructed, providing visual and physical connectivity between the subdivided plazas.

The closest building to SB 17 is Structure 16, facing away and towards the winter solstice, with three lintels carved on the outside illuminated during winter months and solstice, commemorating solar anniversaries of previous rituals performed by Bird Jaguar IV’s deceased female ancestors, Lady Ik’ Skull and Lady Wak Tuun of Motul de San José.120 Performing a bloodletting ceremony, the women have bicephalic serpents slithering through their royal hands with God K emerging out of both mouths. At Yaxchilán God K is considered the Divine First Ancestor, a supernatural authority serving as a conduit between the cosmic and earthly realms, and “The bicephalic serpent may be the zoomorphic form of ritually hot sacrificial offerings through which the Maya reach and summon God K into the worldly realm.”121 Structure 16 and SB 17 both demonstrate the use of ritually hot substances summoning the gods and ancestors: Structure 16 uses hot blood, which transforms into bicephalic serpents where God K emerges from, and SB 17 pours water over the hot fiery rocks, which produces a hot vapor and converts the space into a watery interface where man and his ancestors commune.

Sweatbath 48

SB 48 is the third sweatbath with little celestial connection, as all the Small Acropolis structures but one, lack an alignment with the winter or summer solstice (Figure 4.37, 4.38, 4.39). Structure 51 was the first structure constructed on this hilltop and located perpendicular to the winter solstice, however, no later structures followed this alignment. All structures on the most northern edge face northwards and those surrounding the main plaza turn away, instead of inward, as is commonly found around internal courtyards. The only evidence of a celestial connection is Structure 44’s hieroglyphic stairs, which commemorate the 84th solar anniversary of Shield Jaguar’s flapstaff ceremony, however, these stairs align with neither the winter nor summer solstice.

Yaxchilán’s two sweatbaths, located in the Great Plaza are connected to the celestial domain. Both sweatbaths SB 10 and SB 17 are perpendicular to the winter solstice and reinforce and respond to buildings, which previously established alignments to the winter solstice. Additionally, buildings and artifacts in the two subplazas narrate a different celestial story, shedding light on the symbolism of the summer sun and winter sun and rituals coinciding with each timeframe. SB 17 was surrounded by buildings predominantly facing the winter solstice, and events recorded on artifacts honored ancestors and royal lineages. SB 10 was surrounded by buildings facing the winter solstice and likewise intersected the summer solstice axis; the events recorded described accession of kings, changes of power, and warfare, pertaining to summer solstice events. Together the buildings, their alignments, artifacts, and collective narratives provide a more profound understanding about the sweatbaths, events surrounding them, and to which they were most likely a part of.

120 Tate, Yaxchilán, 92. Both women are on Structure 24’s lintels which are also carved only on the front and facing the winter solstice.
121 Ibid., 93. Eric Thompson also believed God K was a manifestation of Itzam Na, a creator, and a deity of vegetation, represented through trees, fruit and corn. This is one of two strong connections with Palenque, as the sides of Pakal’s sarcophagus depict the ancestors in various forms of fruit bearing trees. Tate states that, “Lineages were linked metaphorically with branches and fruit,” and Mary Miller also believes that fruit-bearing trees were believed to be ancestors and gave sustenance to their people in the form of fruit. Trees are upright, their roots in the ground and their branches and leaves in the air; God K is also depicted in an upright position, with sacred substances flowing from the community to the cosmos.
4.4 Sample Group Sweatbaths

Projecting out into twenty-eight other sweatbaths discovered a few examples of celestial alignments and one amazing example, in particular. Twenty-eight sweatbaths throughout the Maya region were studied to determine typical sweatbath orientations, and southwest facing sweatbaths had the largest number: eight out of the thirty-one sweatbaths, one fourth of the sweatbaths. The second most frequent direction is the southeast with six sweatbaths, approximately one fifth of the sweatbaths; those facing west, northwest, and north have four sweatbaths each; those facing east, northeast, and south account for the five remaining sweatbaths, one sixth of the sample group. When combining all the southerly facing sweatbaths there is a total of sixteen sweatbaths (16/31), accounting for slightly half of the sample group. Westernly facing sweatbaths also totaled sixteen sweatbaths. Sweatbaths facing northwest to the southeast, via the southern direction, include twenty-four sweatbaths, three quarters of the sample group, a similar pattern when classifying sweatbaths as residential or ceremonial and by geographic region.

Generally the sweatbaths are oriented towards the southern half of the compass, although no direction is entirely dominant, which is apparent in the sample group at sites with various sweatbaths, such as Piedras Negras, Palenque, Chichen Itza, and Yaxchilán, where the sweatbaths face in all directions. What becomes visible, in particular at sites like Yaxchilán, Piedras Negras, and Palenque, is how the sweatbath responds to and fits into its surrounding context, in particular aligning with other ceremonial structures. In unique situations, dominant structures align to specific celestial phenomena, and other structures, including the sweatbaths, reinforce these orientations, at times in subtle ways as seen at Yaxchilán or in obvious ways like Chichen Itza. Therefore, while orientations vary, it clearly is nonetheless important in the sweatbath’s sitting and role in rituals. Examples of sweatbaths with celestial connections were sought out and discovered at Chichen Itza, Uxmal, and Palenque, and sweatbaths as part of the ceremonial realm, respect and respond to alignments established by large ceremonial architecture, and in some cases establish the alignments themselves.

The Sun and the Sweatbath

Relationships between sweatbaths and the celestial bodies are demonstrated with four different sweatbaths: Palenque’s symbolic sweatbaths, the Temple of the Cross, previously discussed, and the Temple of the Sun, and sweatbaths at Uxmal and Chichen Itza, with notable celestial connections involving Venus. Solar hierophanies occurring in the Temple of the Sun are some of the most impressive known, discovered by a group of researchers who set out to observe the sunlight’s interaction in the Temple of the Sun, which faces east towards the mountain, Yemal K’uk’ Lakam Witz, blocking the horizon. During the winter solstice nothing of significance occurred; the winter sun rises too far south on the horizon hidden behind the mountain. On the morning of the vernal equinox in March, the sun emerges from behind Yemal K’uk’ Lakam Witz, its rays enter into the temple’s central doorway illuminating a medial wall and a sliver of light passes beyond it, terminating in the southwest corner (in plan, the light fell left of the innermost chamber). This solar phenomenon lasts nearly forty minutes before it disappears (Figure 4.40). Topographic studies revealed a notch, carved out of the side of Yemal K’uk’ Lakam Witz, granting entrance to the equinox sunrise light at this moment twice a year. The third observation in June during the summer solstice is a similar phenomenon to the equinox, but the angle is longer and more obtuse, entering the northern doorway and passing through at a diagonal to the tem-

122 Piedras Negras, the site downriver from Yaxchilán, has the largest number of sweatbaths and they all face in different directions; two face east, one southeast, three southwest, one northwest and one northeast. Palenque has five sweatbaths, with three being symbolic sweatbaths. Here, two face southeast, one faces southwest, one faces north and one faces northwest. Chichen Itza has three sweatbaths, two face northwest and one faces southwest.
ple’s southwest chamber, bisecting the interior from one corner to the opposite corner (Figure 4.42). Sunlight passes through several thresholds and walls with only a small sliver reaching and illuminating the corner, and “by capturing sunlight through doorways at a diagonal, observers were also able to confirm the position of the sun on the horizon on significant dates with greater precision.”125 The Temple of the Sun served as a calendar confirming important celestial dates, most likely tied to agriculture, and critical for planning and timing rituals and celebrations.

As is with most Maya temples, only the elites and priests were allowed inside and therefore, it is probable they were the only ones privy to the phenomena occurring on the temple’s interior. However, from the outside the public could observe the phenomena, and it is possible a ruler or priest would have stood in the path of sunlight, in the center of the illuminated chamber, appearing to have manifested this celestial phenomenon within the earthly realm.126

In addition, both zenith and nadir passages create observable phenomena inside the Temple of the Sun. On zenith, sunlight enters much like it does during the summer solstice, but terminates in the southeast corner of the innermost chamber, the sweatbath chamber (Figure 4.41). Mendez explains, “Just as the ruler acted as a conduit between worlds, the sun’s position at zenith passages served as a portal through which the moon and other planets passed. Viewed from the Temple of the Sun, the moon and sun appeared as complementary opposites whose interwoven cycles were the basis for keeping time and giving measure to space.”127 On nadir passage, the sun rises and illuminates the temple more directly and the southern chamber is illuminated with a wide projection of sunlight entering the central doorway, reaching the inner sanctuary. The glyphs describe the innermost sanctuary as a pibnaah, a sweatbath, and the contrasting light and shadow on the innermost chamber makes it appear very dark, like a mouth or a cave entrance.

Standing in the Temple of the Sun looking outwards, the sun’s changing positions can be observed using the landscape and buildings (Figure 4.43). During the days near summer solstice the sun rises left of the Temple of the Cross, at zenith, the most important date, it rises above the Temple of the Cross, at equinox it rises from a slight dip of the Yemal K’uk’ Lakam Witz’s base, at nadir it rises out of the steep hillside, and near the winter solstice it rises above the top of Yemal K’uk’ Lakam Witz, more or less above the Temple of the Foliated Cross.128 The Temple of the Sun was designed with a complimentary charting system, building and landscape, utilizing architectural features, corners, wall, doorways, and passageways to measure internally the sunlight’s angles, and projecting outward it uses the landscape and other sacred buildings to identify the sun’s location along its journey between extremes.

Another solar observation involving the Temple of the Sun occurs from the altar located in the center of the plaza created by the three temples. As previously described, the summer solstice sun sinks behind the Temple of the Inscriptions and the Temple of the Sun, facing an easterly direction and turning away from the Temple of the Inscriptions. The descending sun passes through the Temple of the Sun’s roofcomb, illuminating the outline of a figure seated on a throne or the Earth Monster, holding a double-headed serpent bar.129 Another figure, located underneath the earth monster on the roof frieze, believed to be K’inic Kan Bahlam in guise of God K, is similar to the depiction found on the tablet inside the Temple of the Sun’s sanctuary.

Glyphs inside the Temple of the Sun record nine astronomically significant dates and alignments between Mercury, Venus, Mars, Jupiter, Saturn, and the moon. These dates span from the birth of GIII in 2360 BC until 692 AD with a k’atun celebration, however eight of them occurred during K’inic Kan Bahlam’s lifetime and three pertained to his rites of passage: heir

125 Ibid., 14.
127 Ibid., 36.
This corner, formed by secondary wall B and the back wall (Figure 11), was apparently added to define the angle of sunlight at equinox. By observing the alignment of diagonal shafts of light in the far corner of the Temple of the Sun, Maya astronomers would have been able to recognize the exact days of vernal and autumnal equinoxes. This knowledge may have served to fix the dates for agricultural activities in the solar calendar (Aveni 2001:293-294).

As mentioned earlier, equinox sightings have been documented at sites with flat horizons, such as Chich'en Itza, Dzibilchaltun, and the Group E architectural complexes found at Waxaktun and numerous other sites throughout the Maya area. The Cross Group at Palenque does not fit the Group E pattern. From the Temple of the Sun, the low notch between El Mirador and the Temple of the Cross defines the horizon at equinox. Our topographical surveys indicate that much of this low notch was manmade. Pending further exploration, structure OT74 and the terraces of the Otolum Group could prove to be the true markers for equinox sightings from the

Nadir is the opposite of zenith. Like zenith passage, nadir passage varies according to latitude; the higher the latitude, the closer the distance between winter solstice and nadir passage, summer solstice and zenith passage. At the equator, nadir and zenith coincide with the equinoxes. At the 23° latitude of the Tropics, nadir and zenith correspond with the solstices. At Palenque's latitude of 17.28° N, nadir passage occurs at midnight on 29 January and 9 November, when the sun passes at 90° below the horizon (Figure 23).

The nightly passage of the sun under the earth is described in contemporary cosmology and folk tales (Gossen 1974:34; Karasik 1996:232, 273). Additionally, ethnographers have found that modern Maya languages equate our cardinal directions of north and south with zenith, “up” or “above,” and nadir, “down” or “below” (Tedlock, B. 1992:19-24). According to Coggins, the same was true for the ancient Maya (Tedlock, B. 1992:19).
other secondary wall (C) does not have an opening, we must assume that the architects chose to capture the light that radiates from the northern part of the horizon. Careful alignment of the doorways to the medial wall permitted the ray of light to pass through the temple. By capturing sunlight through doorways at a diagonal, observers were also able to confirm the position of the sun on the horizon on significant dates with greater precision.

A final point needs to be made concerning the intentionality of design as well as the function of the temple. While the diagonal of the temple (66° 14') is only one degree off the true azimuth for summer solstice sunrise (65° 14'), it is the visible light entering the temple at 70° and its relationship to the transverse axis that mark the angle of the summer solstice (Figure 15). This indicates knowledge of the solsticial azimuth prior to the construction of the temple; later design modifications reaffirm this knowledge both visually and conceptually. Based on these factors, we conclude that the temple functioned as a space for ritualized astronomical observations.

Observations of the sun deep inside the temple would have been conducted by priests, astronomers, or rulers, whereas the diagonal light entering through the northeast doorway would have been visible to a larger group of observers. A person standing directly in the center of the building is fully illuminated by the dazzling morning rays (Figure 16). This powerful lighting effect may have been employed during public rituals that took place during summer solstice.

On the evening of the summer solstice, at 6:18 P.M., we made our principal observation from the small “altar stone” near the base of the stairway of the Temple of the Cross. At an azimuth of 290°, the sun sinks behind the Inscriptions Prospect, and the last rays of light pierce the center of the roof comb of the Temple of the Sun (Figure 17).

Figure 4.42. Map and photographs of Palenque’s Temple of the Sun interior on Summer Solstice [used with permission from Alonso Mendez]

Figure 4.43. Perspective of Palenque’s Temple of the Sun and sunrise location at specific times of the year [used with permission from Alonso Mendez]
Figure 4.44. Chichen Itza’s Caracol Observatory

Figure 4.45. Chichen Itza’s Caracol Observatory, sweatbath front

Figure 4.46. Chichen Itza’s Caracol Observatory, sweatbath inside
Figure 4.47. Chichen Itza’s Caracol Observatory and sweatbath

Figure 4.48. Plan of Caracol Observatory and the South Annex [used with permission from Carnegie Institute]
designation, warfare, and accession. In addition, there were two building dedications, one sanctuary dedication, and a bloodletting ritual, and interestingly seven of these events involve a full or new moon and several celestial conjunctions between Jupiter, Mars, and Saturn. Furthermore Jupiter is present in four of these events, and Lounsbury discovered the movement from its stationary point was a critical celestial phenomena K’inich Kan Bahlam adopted for his rites of passage, discussed in detail in Chapter 5. Five events are recorded coinciding with Jupiter’s stationary position in the sky: a heir designation event, his accession, a time when K’inich Kan Bahlam performed special rites in observance of the gods, a 12 year anniversary he would have planned before his death, and his posthumous return. Together the rituals recorded and depicted inside are connected to the movement of the celestial bodies, relating to transformation of a king from birth, puberty, adulthood, kingship, and his resurrection as a deity. Like the sun and moon, likened to man’s life, as Jupiter completed each cycle and returned again, K’inich Kan Bahlam progressed through his life cycles, performing his rites of passage, being energized at each interval, and finally being apotheosized into the celestial domain as a god.

The Temple of the Sun has the strongest celestial connections known of the sweatbaths, and perhaps one of the most intricately designed celestial structures in the entire Maya area. The temple is a solar calendar, charting the sun’s movements through sunlight’s interaction with the architectural walls, corners, facades, and thresholds. It receives astronomical hierophanies, manifesting the sacred celestial powers into the structure’s narrative roofcomb, referencing the creation deities, elite ancestors, rulers, and important ceremonial events that occurred in conjunction with celestial alignments and phenomena. Together this structure embodies the celestial realm manifested in the physicality of human and earthly existence.

**Venus and the Sweatbath**

Alignments with Venus are abundant throughout the Maya region even though they are more difficult to determine because of Venus’ long fluctuating cycles. At Uxmal and Chichen Itza important structures derive their alignments from Venus, and sweatbaths located near them similarly align. The Caracol (shell) Observatory at Chichen Itza is one of the most well-known observatory structures in Mesoamerica, its name derived from its narrow heliacal passageway spiraling to the top of the structure like a shell’s interior (Figure 4.44). Located on a two-tiered platform is a domed, cylindrical structure with four outer doorways and four internal doorways on the bottom portion, and three windows opening towards the south and west on the upper portion (Figure 4.48). Caracol marked both Venus and the sun’s cyclical movements: Both the base of the lower platform and the principal altar supporting a pair of round columns set into the stairway of the skewed upper platform, marked the Venus northerly extreme around AD 1000, when the building was erected. Furthermore, a diagonal sight line in one of the windows of the upper chamber lay exactly parallel to this direction. The same diagonal taken through window 2 matched, to within 1°, the Venus set position when it attained its maximum southerly declination. Other alignments in the Caracol registered the sunset at the equinoxes and sunset on the days the sun passed the zenith, a phenomenon given much attention among ancient civilizations of the tropics.

Located on the south side of the Caracol Observatory is one of the Chichen Itza’s sweatbaths and its doorway faces in the same direction as Caracol (Figure 4.45, 4.46, 4.47). Maya priests divined the celestial bodies’ movement, which most likely required purification before any ceremony,

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131 Ibid., 592.
132 Aveni, *Venus and the Maya*, 283.
133 Ibid., 283-284.
thus it is plausible the priests purified themselves for celestial watching in this sweatbath. While the connection between Caracol and the sweatbath is not fully understood, the close proximity suggests Caracol as the dominant building, which influenced the sweatbath's alignment.

Uxmal, the most famous Puuc site, is located in the flat northern Yucatan peninsula, previously described. The Governor’s Palace deviates from the plan, turning away from the site, and towards a ceremonial center, Nopha, six kilometers in the distance. Over 350 hieroglyphs, present on the Palace of the Governor’s upper façade reference Venus, and Nophat is positioned on the horizon where Venus rises at its southernmost extreme. Furthermore, within the large platform on which the Governor’s Palace platform sits is a small sweatbath in the southeast corner, near an underground water storage, a *chultun*.

134 It is difficult to determine where the opening of the sweatbath is, however, from the map it appears to be parallel with the centerline of the Palace’s central doorway. Either perpendicular or parallel, the sweatbath is in alignment as the Governor’s Palace, reinforcing the celestial alignment.

**Conclusion**

Representative of the womb, the sweatbath is a small compact, four-sided and four-cornered replica of the world, situated in a transitional landscape of water and earth, and in some unique situations, it is physically connected to the celestial bodies through its orientation, timing of rituals, and to the moon in constant transformation and association with childbirth and midwifery. Like the sweatbath, the celestial bodies’ cycles assimilate death and rebirth, transformations occurring in watery darkness fundamental to the sweatbath’s symbolism and ritual. The Maya sky, animated with gods, rulers, and ancestors, is documented in codices, on artifacts, and buildings in the built world, detailing important celebrations and rituals. The Maya scheduled and coordinated their agricultural cycles, and religious and political life rituals around their presence and patterns in the sky, weaving their transient nature into the built form, through city and building alignments, and reciprocally, this built form was used to measure and predict the celestial bodies’ movements.

Initially discovering Yaxchilán’s SB 10 and SB 17 were situated among many buildings generally aligned to the winter solstice, made aware potential connections with the celestial bodies. Projecting out from Yaxchilán to other sweatbath sites, several other sweatbaths were likewise influenced by the celestial bodies, directly or indirectly. Palenque, Uxmal, and Chichen Itza’s sweatbaths are adjacent to important structures, such as observatories and royal courts, aligning to a particular celestial orientation, therefore, the sweatbaths align. Perhaps more examples exist but remain unknown, requiring additional analysis. Palenque’s Temple of the Sun, proved to be an extraordinary example of celestial oriented architecture, internally, externally, and ritually through rites of passage coordinated with Jupiter’s presence in the sky and other celestial events. Illustrating the sweatbath’s ritual importance, the Temple of the Sun and other Cross Group Temples reveal ancient aspects to the sweatbath ritual that survive today, and open the possibility for similar roles to have existed at other sweatbath sites, but unfortunately many lack evidence to concretize such connections and can only be suggested. Connections with the celestial domain, through symbolism, orientation, and ritual narratives, weave together the sweatbath and its transitional landscape of earth, water, and sky, which collectively reinforces the notion of womb, creation, and rebirth. The Maya link the sweatbath, a place of healing, to other natural processes such as seasonal shifts and the celestial movements, reflective and part of the human body’s own physical and symbolic processes and transformations throughout one’s life.

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The natives believe the dead suffer the same process as a seed’s disintegration to return as a new form of life. For this they practice the ritual of pouring a jug of virgin water over the tomb, to stimulate the transformation process of the cadaver, the same as how they do in the temple and in the field, to magically bring the rains that provoke the transformation of a seed into a plant. Rafael Girard

Consistently underlying the sweatbath’s conception, design, landscape, and rituals is liminality, the “betwixted and between” transformative moment. Liminality, closely associated with ritual and rites of passage, is a transitional and indeterminate state between culturally defined stages of a person’s life, but it can also be translated to the physical, an in between place like a cave, mediating above and below earth, or temporal, such as a celestial body’s position in the sky, or in an object’s creation, requiring caution and meaningful decisions, actions, and materials to ensure a desirable outcome. Dangerous and potent, liminality is a process of change and transformation, characterized as a creative but ambiguous time, as the subject straddles between realms of no longer being one thing and not yet the other.

The sweatbath, symbolically conceived of as a cave, is a liminal zone where the supernatural realm and the womb of Mother Earth are entered, a transition between the sacred and profane worlds. Maya believe pregnancy is a liminal time when a woman’s health is in peril, and when she and her community are vulnerable to being harmed and inflicting harm; she is dangerous and endangered. As previously discussed, the sweatbath is a replica of the cosmos, a creation of the earth: four sides, four corners, three tiers, and a sacred center with sacred boundaries, thresholds, and a defined hierarchy that focuses inwards on the center’s transformational hearth. Frequently located in transitional zones expressed physically and symbolically through earth, water, and sky, is the sweatbath, in a liminal landscape where topography shifts between flat and inclined and the fluctuating seasons transform water to land and land to water. Apertures in the earth

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1 Girard, Rafael, Los Maya: su civilización, su historia, sus vinculaciones continentales (México City. Libro México, 1966.), 129.
where water emerges are portals, liminal zones, which the exiting of one world is an entrance into another, a symbolic process of death followed by rebirth. Associated with the moon goddess, the sweatbath shares themes of transformation, regeneration, fertility, and childbirth, and in unique circumstances sweatbath rituals coincide with auspicious celestial positions believed to be portals for divine communion with gods and ancestors. Lastly, rituals such as rites of passage, performed in the sweatbath, evoke the liminal state, the transitional moment of shedding the past to acquire the new for changes in social status, religious duty, and political positions in which the sweatbath purifies the individual to their purest form, a new beginning.

5.01 Rites of Passage: Liminal and Liminality

The term liminality is derived from the early 20th century work of the cultural anthropologist, Arnold Van Gennep, and his seminal work, Les rites de passage, a study on rites of passage, the types of rituals, and the stages of each ritual. Van Gennep divides a rite of passage into a tripartite sequence: the preliminal (separation), liminal (transition), and postliminal (incorporation or aggregation). The preliminal stage is a metaphorical death and the severing of the past, followed by the liminal stage, when many societal limitations are removed to facilitate change and creation of the new identity. Lastly, the postliminal stage is when the initiate is integrated into society with the new identity.

Rites of passage are defined as ceremonies surrounding events of an individual’s life cycles, milestones such as birth, puberty, coming of age, marriage, and death, bridging an individual’s transition into a new stage of life or social position. Van Gennep explains, “man’s life resembles nature, from which neither the individual nor the society stands independent. The universe itself is governed by a periodicity which has repercussions on human life, with stages and transitions, progression, and periods of relative inactivity.” Rites of passage, linked to biological changes such as giving birth and entering puberty, frequently occur within a sociocultural framework, intersecting the natural biological order, but not precisely coinciding with it. For example, birth rites are not usually celebrated when a child is born, but later at one’s baptism, and funeral rites continue months or years after one’s death.

Rites of passage are integrated into community-wide rituals, such as calendric rites, rites of exchange and communion, affliction, feasting, fasting, festivals, and political rites. Calendric celebrations mark the passage of time, renewing the cycles of nature, the seasons, months, years, celestial bodies’ movements, and commemorate historical events. Rites of affliction seek to minimize malevolent spiritual forces and those causing harm to individuals or a community, while rites of exchange and communion involve offerings made to the gods in return for a reciprocal gift. Feasts, fasting, and festivals occur amongst a community showing devotion to each other, demonstrating an adherence to basic values, and promoting prestige between communities. Political rites are ceremonies encompassing the promotion and installation of officials such as kings, village leaders, and rulers.

Rites of passage are cultural manifestations, which differ between traditional and modern societies. In modern societies religion is predominantly separate from other aspects of life, such as politics and economy, and rituals are more individualistic, not intended for the entire society’s well-being. Traditional societies still distinguish between the sacred and profane, “invisible forc-
es” cause malevolent or benevolent circumstances, and ceremonies are specified to safeguard against harm for the entire community.\textsuperscript{8} Traditional societies engage in a continual sequence of ritual obligations, while modern societies emphasize predominant major punctuations in one’s life, such as birth, marriage, adulthood, and death.\textsuperscript{9} In modern societies individuals partake in collective rites of passage such as graduations and joining fraternities and sororities, while others, through experience, encounter their own unique rites of passage, arising out of particular situations such as an immigrant status or being affected by a natural disaster. Rites of passage are not solely a singular moment in life, but also encompass longer durations, for months, years, and even epochs, such as monkhood or priesthood, living as an ethnic minority, and during prolonged durations of warfare.\textsuperscript{10}

Liminality

Following Van Gennep, liminal is the middle stage of a rite of passage, the transitional phase when the action occurs and a demarcation is made between the old and new and the past and present. In the Oxford English Dictionary the etymology of liminal is derived from the Latin word \textit{limin} meaning “threshold” and the root \textit{thresh} meaning “to tread, or trample” in the act of separating grains and seeds from straw. Thresholds create separations and distinctions. Architecturally, physical thresholds such as windows, doorways, raised wooden planks, stones, or other materials at an opening, when crossed over or passed through by the body, create a transition between distinguished spaces, and movement from lightness to darkness, enclosure to openness, and profane to sacred, are a few ways transitions transpire experientially, perceived through one’s senses. Psychologically, thresholds refer to a measureable amount of perceptible stimulus causing a reaction, a separation between an inactive and active state. In summary, \textit{limin} is a threshold, a border or a limit when crossed, which creates a transition from one thing to another, a leaving behind to acquire the new.

The term liminality became widespread in the 1960s through the writings of Victor Turner, a cultural anthropologist, who conducted fieldwork in Central Africa with the Ndembu tribes. Out of his work arose the lexicon of “liminality,” “communitas,” “anti-structure,” and “betwixt and between.”\textsuperscript{11} Turner, borrowing and expanding upon Van Gennep’s liminal stage, enabled the widespread usage of liminality, defined as a transitional or indeterminate state between culturally defined stages of a person’s life, in particular a state occupied during a ritual or rite of passage. In exploring the concept of pollution, Mary Douglas found things unclear and contradictory are unclean, suggesting the liminal state’s ambiguity lends to its association with pollution, as seen with many cultures and rituals.\textsuperscript{12} Individuals in the liminal state, are neither one thing nor the other, the intermediate or middling position between two states, characterized as a “culturally dangerous but culturally creative middle stage,” when the individuals partaking in the rite are without typical societal constraints and allowed to think more freely and openly about their inhabited world.\textsuperscript{13} Preconceived notions are repealed, exploring the “affirmation of another order of things and relations.”\textsuperscript{14} Not all societal structures are entirely abolished, as Turner acknowledges, and instead are simplified, rearranged, or reversed, for example, kings or rulers might temporarily behave as common man, directed and ordered around by others, in hopes of under-

\textsuperscript{8} Bell, Ritual, 108-120; Van Gennep, Rites of Passage, 3; Deflem, “Ritual, Anti-Structure, and Religion,” 17.

\textsuperscript{9} Bell, Ritual, 95.


standing and developing compassion for everyday man.15

The liminal stage is a critical period when new knowledge is acquired and one’s comprehension of the world and role fundamentally changes. Revelation of sacred knowledge and spiritual mysteries, gnostis, is revealed in one of three ways: 1) it is something shown, such as an effigy, musical instrument, masks, or relic, 2) it is something done such as the revelation of sacred names, places, or chants, or 3) it is some type of instructions received.16 Interaction and exposure to sacra, the sacred object or experience, is frequently part of the liminal state and believed to fundamentally change one’s innermost nature and being.

Maya Liminality

Liminality can be translated to and comprehended within Maya culture, a concept present in various realms: mythology, art, natural features, celestial bodies, and ritual process. For example, in art specific deities are depicted as zoomorphic, liminal personae, physically part human and part animal or insect. This transitory “betwixt and between” nature allows them to exist within two worlds, dwelling in liminal places, such as caves, water, and the underworld. Finamore and Houston write, “Maya were consistently fascinated by creatures that bridged worlds, such as diving birds, crocodiles, the water-loving jaguar, even otters,” recalling Palenque’s GI deity depicted with a variety of aquatic features: a fish fin on each cheek, shell ears or shell ornaments, sometimes a headdress with a stingray spine situated between two spondylus shells, and the k’in helmet, linking him to the sun.17 Stuart believes, “Given GI’s connections to the sun and his apparent associations with the eastern point of solar rebirth, we might speculate that he was considered a watery aspect of the sun before its emergence from the underworld.”18 Venus, the wasp star Xuk-Ek, depicted in the Dresden Codex, has a human body with a wasp abdomen and wings, recalling the bridging between worlds.19 Another example is Quetzalcoatl, the central Mexican mythological feathered serpent wind god, portrayed as a human with features of land and sky animals; feathers surround his body associated with the sky and his serpent body binds him to earth.20 Maya deities are “fluid, ever-changing entities,” whose mutability allows them to assume different forms, and “occupy the liminal states of being,” negotiating between different worlds.21

Threshold as a liminal in between place is found at the Post Classic site of Tulum. Here perched on a cliff above the Caribbean Sea, is a mural depicting a two-headed person looking in opposite directions, resembling the Roman god, Janus, the god of beginnings, transitions, and thresholds (Figure 5.01).22 Janus has one face looking towards the future and the other looking to the past, the two faces mirroring each other, and the figure in the Tulum mural, while it does not entirely mirror itself because the left side has teeth and what appears to be a looped rope on the top, the two faces look in opposite directions suggesting liminality as an in between state. This image, portrayed in Mural 9, is located in the southeast corner of the Temple of the Frescos (Structure 16), part of a larger series of murals inside (Figure 5.02). According to Milbrath, Mural 2 (Structure 16) portrays a liminal moment when the moon is falling into a reptilian jaw and

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16 Turner, The Forest of Symbols, 102.
18 Ibid., 170.
19 Miller, On The Edge of the Sea, 87.
20 Finamore and Houston, Fiery Pool, 277.
21 Miller, On The Edge of the Sea, 90.
22 Ibid., 55.
descending into the underworld prior to conjunction (Figure 5.02, 5.03). Another structure at Tulum (Structure 5) with murals inside, portrays Venus as a morning star in the upper register (east), underworld imagery below (west), and the liminal state of dawn in the middle. Twisted cords, which Miller believes are umbilical cords, visually connect the mural’s upper and lower register and he writes, “the middle area through which twisted cords are drawn is an area that is neither up nor down; it is a transitional and liminal realm, a region of ritual where the transitory nature of activity is vividly represented by the cosmic umbilical cords, which - like the human umbilical cord - is a line that sustains life through a passage from one state of being to another,” (Figure 5.04). Miller believes Tulum’s liminal qualities are further embodied in its building orientation, iconography, and its purpose as a pilgrimage site of Ix Chel, a moon goddess who “transforms darkness into light and causes birth and rebirth.” Not surprisingly along this coastline and in the offshore islands are shrines and pilgrimages honoring Ix Chel where women from all parts of the Maya area traveled seeking fertility. Tulum and the Yucatan’s entire east coast is a liminal setting, physically where land meets water, the coast rhythmically shifts between land and sea in tandem with the moon, and the primordial sea is out of where the celestial bodies are born.

Tulum’s liminal nature is also emphasized, Taube believes, through its abundance of flower world imagery and association with east, the place of the dawning sun. Present on many buildings are flowers blossoms, not solely adornments, but indications of xoichtalli, “house of flowers,” or “floral temples” combined with flower cornices and zoomorphic witz (mountain) masks, symbolic of Flower Mountains, a floral paradise located in the east and inhabited by precious birds. Flowers are associated with east, birth, the uterus, and souls as blossoms’ fragrance represent the life animating force of the breath. In addition to flowers, the twisted cords as cosmic umbilicus previously described in Mural 2 (Structure 16), Taube believes are bodies of intertwined plumed serpents, a creature of the east, identified with the celestial flower paradise, and the Mesoamerican god Quetzalcoatl, representative of the east, dawn, the morning star, and summer wind and rain. Structure 16, also where the moon goddess is depicted, according to Taube shows, “a pair of intertwined serpents carrying gods on their backs as they rise out of a pool of water…almost surely the Caribbean, located 100 meters to the east,” and the pool of water is believed to be inside a Witz Monster Mountain, the maw as a cave, linked to the flower mountain (Figure 5.02, 5.03). Like the sun, these gods’ “dawn emergence out of the eastern sea” represents their birth through a watery portal and cave. Birth is expressed at Tulum through floral imagery, its association with the east, the primordial sea as a portal, and the dawn’s rising sun, themes and places embedded with liminal qualities.

Liminality is fundamental to Maya rituals, the moment of transformation during rites of passage, rites of initiation, and rites of participation, when an individual passes from one state to another or is transported to and from the supernatural realm via a sacred portal, a liminal zone.

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24 Ibid., 87.
25 Ibid., 95.
26 Ibid., 87.
29 Ibid., 178, 182.
30 Ibid., 147.
31 Ibid., 145, 182.
32 Ibid., 178.
33 Ibid., 182.
Figure 5.01 Image of Janus head, Tulum Str. 16, Mural 9 [used with permission from Dumbarton Oaks]

Figure 5.02 Image of Moon Goddess, Tulum Str. 16, Murals 1, 2, 5, (moon goddess is at the bottom with the staff in hand) [used with permission from Dumbarton Oaks]
Figure 5.03  Zoomed in Image of Moon Goddess zoomed in, Tulum Str. 16, Murals 1, 2, 5
[used with permission from Dumbarton Oaks]

Figure 5.04  Image of twisted cords, Tulum Str. 5 interior east wall
[used with permission from Dumbarton Oaks]
It is manifested through the cosmic boundaries between life and death and the underworld and underworld. The canoe journey, when it dips below the water’s surface, is symbolic of death and a commencement of the underworld journey of rebirth as the Paddler Twins guide the dead ruler through the underworld.35 Portals and thresholds such as caves, water, celestial conjunctions and disappearances, bloodletting, and sacrifice, are openings, liminal zones, where humans commune with the gods and ancestors in the supernatural realm and receive guidance for living.

Liminality encompasses the sweatbath structure and ritual; it is a place of physical and spiritual creation, birth, death, and renewal, and a portal where the supernatural realm is accessed. Creation is intertwined with the sweatbath’s meaning, representative of the womb of Mother Earth, the gestation period, childbirth, caves, watery portals, and death followed by rebirth. Many rituals centrifugal to Maya daily life, like the sweatbath, celebrate creation, which is preceded by death as a form of regeneration for earth, humans, the gods, celestial bodies, time, agriculture, and ritual life. Death is never an end, but a transformation, and like a rite of passage, the sacrifice or leaving behind of the old, enables the formation of the new, punctuating one’s life in defined intervals and reenergizing the individual and the community.36

5.1 Liminal Beginnings: Sweatbath as a womb
Mythological Womb and Creation

Sweatbaths are symbolically linked to caves, a mythological place of creation, and conceived of as the womb of Mother Earth, the place of origin and death.37 Being born in the womb of Mother Earth is understood as coming, “from the depths of the earth, from caverns, caves, ravines, but also from ponds, springs, rivers,” the places where Maya and Mesoamerican gods, humans, and ancestral lineages emerged.38 Evidence of this belief is found in examples such as in Aztec mythology, where the sun, moon, fire, water, earth, and rain gods were born inside caves, two depictions of Chicomoztoc, where the ancestors emerge from caves, and the Triad Deities’ watery mythological birthplace of Matawiil, associated with sanctuaries called pibnaah, a sweatbath.39 Many cities’ names, such as, Chichen Itza, Dzilbalchen, Cacalchen and Bolonchen, have the suffix ch’e’en meaning cave or original water source, and today contemporary Tzeltal and Tzotzil Maya designate specific caves believed to be a lineage’s point of origin.40

Caves are wombs and tombs, where the gods and ancestors are born, as described, and

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36 Bell, Ritual, 95.
38 Eliade, Mircea, The Sacred and the Profane: The Nature of Religion (San Diego: Harcourt, 1957), 140; Van Gennep, Rites of Passage, 52; Prufer, Keith M., and Andrew Kindon, “Replicating the Sacred Landscape: The Chen at Muklebal Tzul,” in Stone Houses and Earth Lords: Maya Religion in the Cave Context, edited by Keith Prufer and James E. Brady (Boulder: University Press of Colorado, 2005), 28-31; Peterson, Polly, and Patricia McAnany, Allen B. Cobb, “Defanging the Earth Monster: Speleothem Transport to Surface Sites in the Sibun Valley,” in Stone Houses and Earth Lords: Maya Religion in the Cave Context, edited by Keith Prufer and James E. Brady (Boulder: University of Colorado Press, 2005), 237. Mountains to the Maya were filled with water, and caves were apertures into the earth where water emerged. The Maya term chan ch’e’en sky cave, is related to the Nahuatl term altepel, “water filled mountain,” and both are used to describe a community, its people.
dwell after death. Caves symbolize the entrance into the underworld, a liminal zone, which when penetrated begins the journey of death and transition into a new life. High-ranking Tzeltal and Tzotzil Maya clan members are buried in the ancestral cave, and upon death, all the members’ souls are believed to return there.\(^41\) Caves, like cenotes, were where humans were sacrificed, cast into the deep waters as offering to the gods, and in completing the life cycle, caves are places of rebirth and emergence.\(^42\) Rebirth is represented on the famous sarcophagus lid of Palenque’s king, K’inich Janab Pakal. Having completed his underworld journey, K’inich Janab Pakal rises from a cave, the maw of the underworld, depicted as U-shaped jaws around his body. A sacred tree rising from his body, resembles the Temple of the Cross’ sacred world tree associated with the eastern sunrise and dawn: it rises from a sacred bowl marked with a k’in (sun) sign, symbolic of the “womb of the cosmic alligator” or “the nocturnal starry night,” and the skull below is the animate seed, the tree’s origin.\(^43\) Liminality, embedded in notions of east and west, relates to death and darkness as the west is the entrance to the underworld and rebirth and triumphant ascension out of the cavernous underworld is in the east at dawn.

Caves, natural apertures into the earth, abundantly dot the Maya landscape as shrines, pilgrimage sites, and supernatural portals. They physically mediate the boundary of earth and the underworld, past and present, natural and supernatural, darkness and light, and malevolent and benevolent forces. Caves, like the sweatbath, arouse the dichotomies of life, explained by Turner:

> The logically antithetical processes of death and growth may be represented by the same tokens, for example, by huts and tunnels that are at once wombs and tombs, by lunar symbolism (for the same moon wanes and waxes), by snake symbolism (for the snake appears to die, but only to shed its old skin and appear in a new one), by bear symbolism (for the bear “dies” in autumn and is “reborn” in the spring), by nakedness (which is at once the mark of a newborn infant and a corpse prepared for burial), and by innumerable other symbolic formations and actions. This coincidence of opposite processes and notions in a single representation characterizes the peculiar unity of the liminal: that which is neither this nor that, and yet is both.\(^44\)

By the same force creating life, the watery cave-like domain is where mothers and fathers “have gone to rest,” and in the sweatbath, the darkness one enters and dies in is the same darkness where one is recreated, emerging into light, as new.\(^45\)

The sweatbath at Quiriguá, housed inside Structure 1-B2 has mountain masks on the exterior cornices and marked by five-flower toponyms. Looper believes these mountain masks and the five-flower toponyms are an “effigy of Quiriguá’s local maize-mountain,” associated with the creation mountain, Yax Hal Witz, where the corn plant first emerged and is often an indicator of burials.\(^46\) As Looper believes, the creation mountain and the five-flower-toponym designs are related to the sweatbath inside and correspond with the sweatbath, as “xochicalli,” a “house of flowers” associated with the uterus and its dark watery inside as a place of death, rebirth, and communion with the ancestors.\(^47\)

\(^{41}\) Ibid., 151.
\(^{43}\) Stuart and Stuart, Palenque, 198.
\(^{45}\) Child, “The Symbolic Space of the Ancient Maya Sweatbath,” 159.
\(^{46}\) Looper, Matthew G., Lightning Warrior: Maya Art and Kingship at Quiriguá (Austin: University of Texas Press, 2003), 69-72. The five flower toponym has several meanings: it is a supernatural location, “the realm of the dead as well as with the Creation of the world,” a mythological place where corn is reborn, “where Creation and the primordial sprouting of maize took place,” a rebirth out of black water or black earth, and a place for ancestor communication.
\(^{47}\) Looper, Lightning Warrior, 72; Reyes, Armando Sanchez, El agua en la cosmovisión y terapéutica de los pueblos indígenas de México (México: Instituto Nacional Indigenista, 1999), 104-105; Sahagún, Fray Bernardino. Historia general de las cosas de Nueva España I (Barcelona: Linkgua S.L., 2008), 431, 435.
Conception: the Liminal Period of Gestation

The sweatbath structure is considered the symbolic womb of Mother Earth; creation and birth are fundamental to the structure and associated ritual. The Totonacs of Central México still consider entering the sweatbath to be a “penetration of the womb of Mother Earth,” an extension of the mythological womb, and Child explains, “the natural phenomenon of birth that is symbolically transformed to the supernatural being of Mother Earth, so that she can give birth to both natural and supernatural beings. This is why the female sweatbath deity is considered a grandmother or mother of the gods, along with the mother of the human race.” For hundreds, perhaps thousands of years, women have given birth and receive prenatal and postpartum care in the sweatbath, illustrated in the ancient Mixtec Codex Zouche-Nuttall, showing a mother having given birth below a heated up sweatbath with priests overseeing the event and offerings being made. The mother is shown with her baby girl still attached via the umbilical cord, and to the left is a “cave, an underground house with water,” with a stream flowing out with a fish, a shell, and a lobster floating in it. The sweatbath, like the umbilical cord, “couples events and beings of the distant past with actions carried out in the present.”

In traditional cultures, including the Maya, gestation is liminal, a vulnerable and potentially dangerous period for the mother, baby, and community. Present in the Colonial Yucatec language, k'asal, the word for female genitalia means “pollution” and “ugliness.” Maya communities of Guatemala today liken pregnancy to disease and illness, an imbalance to be restored, which “requires cautious manipulation and balance of certain foods, herbs, body positions, temperatures, levels of hot and cold, interpersonal relationships, and environmental factors.” Pregnancy elevates the mother’s body temperature resulting in an imbalance, and throughout the pregnancy she must be closely cared for by midwives who are trained to perform various rituals, which “begin prenatally with the ensoulment of the fetus, food cravings, and sensitivity to soul perils outside the womb and continue postnatally.” Midwives play a very important role in the

51 Macina, El Temazcalli mexicano, 60.
52 Houston, Stephen, “Symbolic Sweatbaths of the Maya: Architectural Meaning in the Cross Group at Palenque, México,” Latin American Antiquity, Vol. 7, no 2. (June 1996), 146; Groark, Kevin P., “To Warm the Blood, to Warm the Flesh: The Role of the Steambath in Highland Maya (Tzeltal-Tzotzil) Ethnomedicine,” Journal of Latin American Lore, 20, no 1 (1997): 27. “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.”
54 Barrera Vásquez, Diccionario Maya (Mérida, Yucatan. Ediciones Cordemex, 1980), 381.
56 Cosminsky, “Maya Midwives of Southern México and Guatemala,” 200.
mother’s health, the community’s safety, and “manage the pregnancy and birth and implicitly transmit values, belief, and psychological support,” discussed in detail in the later section on birth rituals.57

During pregnancy, a woman can cause her child and others damage, and conversely, outside forces can inflict her harm, causing deformities and abnormalities to the unborn baby. Sahagún documents many beliefs regarding pregnancy during the colonial period: pregnant woman should not witness anyone hang or kill themselves or the baby will be born with its cord around its neck; she should not look at eclipses or the baby’s lips and teeth will be deformed; if the mother goes out at night she must put ashes on her waist; if the mother goes out too much at night, the baby will cry a lot; or if the man cheats on the mother, the baby will be born with a bad heart.58 Ashes are used as a powerful antidote and rubbed on the body to avoid harm. Today it is believed pregnant women should avoid everything considered cold, not make fun of other people’s defects or her child will have defects, avoid full moon nights, not stare at children or she will give them the evil eye, and instead she should contemplate gracious adults so her child will be like them.59 The sweatbath neutralizes perilous influences from the external world, moderates the mother’s “grave bodily disequilibrium,” and physically relieves pain and pressure.60

It is important to follow proper rituals throughout birth and post partum so the gods are not offended.61 Currently, Nahua midwives perform a cleansing ritual to protect the mother and child shortly after childbirth, using candles, palm adornments, copal incense, and food for the earth spirits, offered as a form of compensation.62 Similarly, in the Ixil Maya community the midwife “passes the child over copal smoke and lights candles saying various prayers for the child.”63 The sweatbath also aids in the let-down reflex of the mother’s milk, where her breasts are rubbed with branches of orange leaves and other plants.64 Sahagún recorded that through the series of baths, a mother was cured and the milk purified.65 Mother and child receive a series of baths (different quantities and lengths dependent upon the community) and when considered clean, the mother is reintegrated into society and the baby is initiated into the community.66

Embyronic Experience

Rites of passage, likened to the “embryonic” experience, are reinforced in the Maya sweatbath ritual as a return to the womb experience. “Embryo” refers to the early developmental stage of life occurring between week three through week seven after conception, an intensive time of development when essential body parts and features are formed, the most vulnerable phase of development. Eliade believes the mother, a symbol of birth, represents the primordial state, “prima materia of the alchemist,” and a return to womb experience is a return to the pure, divine original form.67 This return, to a prior existence with all past potential, is an immersion in “cosmic sacrality ruled by mother earth,” to achieve the highest spiritual existence or transcendence equal

57 Greenberg, “Midwife Training Programs in Highland Guatemala,” 1600; Thompson, “Unpacking the Bricolage Box,” 11.
58 Sahagún, Historia general de las cosas de Nueva España, 464-465.
60 Houston, “Symbolic Sweatbaths of the Maya,” 139; Cosminsky, “Maya Midwives of Southern México and Guatemala,” The sweatbath was used before, during, and after childbirth and overseen by a midwife. It was the midwife who administered the sweatbath and provided massages on the mother’s body, alleviating pain, relaxing the body, and moving the baby into the proper birthing position.
62 Ibid., 154.
63 Cosminsky, “Maya Midwives of Southern México and Guatemala,” 200.
64 Ibid., 197.
65 Sahagún, General History of the Things of New Spain.
66 These will be discussed later in this chapter under initiation rituals.
to the god-like state. The sweatbath ritual integrates the embryonic experience, a re-creation to make anew and become one with and inhabit the divine, and after the sweatbath Ichon writes, it “leaves (bathers) healthy, purified by the fire and water, “new” like a newborn baby.”

The sweatbath’s architectural design has a low door requiring one entering into the sweatbath to move from their “adult” upright position to crawl on hands and knees, like an infant. Once inside bathers assume several postures: sitting upright, in a tucked position, or as shown in the Codex Borgia, Codex Vaticanus B 3773, and the Codex Zouche-Nuttall where bathers are depicted lying down with arms and legs extended or in a tucked position (Figure 1.07, 1.08, 1.09). The tucked position in the codex images resembles that of a fetus inside the womb with the limbs held closely to the body and the legs touching the torso. The sensory experience in the sweatbath further fortifies the embryonic experience. Similar to a fetus in utero, the interior darkness causes the bathers to rely on their auditory, olfactory, and tactile senses, rather than vision. In addition, a fetus does not initially breathe through their lungs, but instead receives oxygen through blood and fluids. While in the sweatbath, one breathes normally through their lungs, the air’s high moisture level requires more effort to breathe and, because the humidity clings and envelops the skin, the body opens up, noticeably breathing through all the pores, nose, mouth, and lungs. Breathing the hot humid air cleanses the nasal passages, enhancing one’s sense of smell. Upon completion, the bathers emerge on hands and knees like infants, from darkness into light, with a fresh and heightened sensory awareness that makes past stimuli seem like new encounters.

Assimilation of death

The initial step of an initiation is to undergo a dissolution of self, a “rendering down to earth,” a return to the beginning, which is an ambiguous and liminal stage where the initiates are “neither alive nor dead,” yet “both living and dead.” Represented with symbols of death and decomposition, the initiate is frequently treated like a dead person or corpse. Typical in initiation rites is the appearance of darkness through the use of dark colors and black, equated with being “invisible,” and reinforcing the return to the original creation moment via death. The sweatbath’s darkness is characteristic of death and the womb and once inside visual distinctions are eliminated. In the Codex Magliabechiano and two of the sweatbath images from the Codex Zouche-Nuttall, the bathers’ bodies are covered in black paint, “in veneration of their idol Tezcatlipoca,” and black signifies death for many Mesoamericans (Figure 1.01, 1.06, 1.07). The bathers painted black in the codex images are part of an assassination, partaking in a typical Aztec sweatbath ritual, and priests watching over the sweatbath during a birth - all events of death, transformation, and birth within the sweatbath.

According to Turner, a characteristic of the neophyte or initiate, the individual undergoing the initiation or ritual, is the act of being “buried,” or “forced to lie motionless in a posture...
and direction of customary burial. 76 Maya dead were buried in a variety of locations and positions: the earth, caves, chultuns, cenotes, houses, ceremonial structures, ceramic pots, and in sarcophaguses, and many bodies are found lying down with the limbs extended, but also in tucked positions. 77 K'inch Janab Pakal was found in his elaborate sarcophagus with his body extended, similar to other burials, but much more elaborate. 78 Bathers in the sweatbath most frequently lie down with their entire body extended and arms and legs flat on the ground, and most of the ancient sweatbaths had benches to accommodate the entire body in a horizontal position.

5.2 The Portal, a Liminal Place for Divine Communication

The sweatbath structure, a liminal place for communing with the ancestors, is constructed through defined boundaries, thresholds, and a sacred center. The passage in the Popol Vuh likens the gods to architects, describing their construction of the world with architectural language, tools, and procedures, and conversely the Maya replicated the gods’ sacred act when they constructed their cities and buildings. Spaces were sanctified through replicating the cosmos, infused with the divine, and thresholds, portals, and axis mundus were created for communion with the gods and ancestors. 79 Looper explains that, “three or four objects placed in a triangle or square constituted a magical diagram, creating a liminal space appropriate to ritual. In sum, Maya artworks may be conceptualized as technology of ritual transformation, which extended the potential of human agents to manage sacred energies inherent in certain materials, idealized geometric forms, and chronological symmetries.” 80 Offerings were made to the sweatbath goddess and idols were buried where it was built as described by Durán:

When a bathhouse was to be built, after the deity had been consulted, offered sacrifices, and presented with many gifts, all the people of the ward where the bathhouse was to be erected took the small stone idol and buried it in the same site where the building was to be constructed. The latter was built there, the idol remaining underground. [This idol] was usually given sacrifices, offerings, incense, especially before people entered to bathe…Certain people were appointed to heat these bathhouses; they performed special rites and spoke certain words on heating them…And so the bath would be beneficial to those who took it, all who bathed contributed to those who heated [the bath] a certain number of ears of corn, chocolate, or seeds. 81

The Maya conceived of many objects as living entities, like the sweatbath, constructing them with meaning and rituals which brought them into existence, followed by dedication ceremonies, animating their soul and bringing them to life. Furthermore, some of these objects had an affecting presence, an aura or mystique emanating from within and associated with the divine.

Quadripartite Structure, Threshold, and Center

As previously discussed in Chapter 2, the typical sweatbath structure replicates the Maya cosmos, the quadripartite composition with four corners, four sides, and a center where the four quadrants converge, at the scale of the terrace, structure, and firebox. The four corners are the cosmological corners, the walls are its sides, and the center is a smaller replicated quadripartite model centered in the space. 82 Contemporary Maya sweatbath construction techniques and ritu-

76 Turner, The Forest of Symbols, 96. 77 Ruz Lhuillier, Alberto, Costumbres funerarias de los antiguos mayas (México: UNAM, Seminario de Cultura Maya, 1968), 149. 78 Ruz Lhuillier, Costumbres funerarias de los antiguos mayas, 338. 79 Eliade, The Sacred and the Profane, 52, 63. 80 Looper, Matthew G., To Be Like Gods: Dance in Ancient Maya Civilization (Austin: University of Texas Press, 2009), 23. 81 Durán, Fray Diego de, Book of the Gods and Rites and the Ancient Calendar, translated by Fernando Horcasitas and Doris Heyden (Norman: University of Oklahoma Press, 1971), 270-271. Later in the passage after he destroyed a sweatbath he dug up the idol to see if it actually was there, said that it was an “ugly and monstrous stone face.” 82 Macina, El Temazcalli mexicano, 51, 76. Variation of this idea transpire in the circular forms, both permanent and non-permanent,
als still honor the four corners and four sides. Groark describes that the first task after the land is leveled is to determine the location of the four corner posts, which are dug into the ground, and the walls are created by applying a straw and mud mixture between the posts. Sometimes dead stinging insects are placed in the mixture because they are believed to increase the sweatbath’s heat and strength, and interestingly in the Codex Vaticano 3773 (p 32) and Codex Borgia (p 13) there are scorpions depicted above and on the sweatbath’s side (Figure 1.08, 1.09). The sequence of events is reiterated in the construction of the firebox, but at a smaller scale; the four corner posts are dug into the ground and the walls are filled in.

At each scale the quadrilateral boundary delineates a sacred realm and the threshold establishes a sacred hierarchy emphasizing the center. At the scale of the terrace, the sweatbath is the center; at the scale of the sweatbath the firebox is the center; and at the scale of the firebox the fiery rocks are the center. Movement is allowed into and out of each space through a single opening in the quadrilateral perimeter. Each opening is a spatial or spiritual threshold uniting one to another world and a convergence towards the central sacred space. Each threshold crossing brings one closer to the sacred and divine. The sweatbath’s thresholds are breaks in the perimeter and frequently centered on the façade and doorway. At the scale of the terrace, the stairs create a break in the boundary, enabling a vertical movement upwards onto the terrace. The next opening is the doorway, the main threshold for humans, allowing horizontal movement into the sweatbath, the transition from an open air into the dark compact domain.

Rocks pass through the same thresholds and the sweatbath’s smallest threshold, the firebox’s opening into the sacred center, where the transformation occurs. For the Classic Maya the three stone hearth is considered the center, or “navel,” a watery place of clouds and creation, where male and female creative forces unite, and the “the dualistic principles seem to describe the hearth as a place of creation.” The fiery rocks similarly inhabit the center, radiating heat outwards, and when combined with water, billows of warm air and hot steam emerge and fill the space. In the reverse motion to entering, the vapor bursts through the firebox’s front side transforming the entire sweatbath chamber. After the bathing is completed, the sweatbath’s doorway is opened and the contained vapors burst outwards, replicating the original transformative bursts. The fireboxes’ vapoours bursts are similar to the vapoours life-sustaining clouds that emerge from caves.
With each spatial reduction, a new limen is crossed and a new center comes into focus, arriving at the primary transformative loci. For humans the smallest habitable place is the sweatbath’s interior, their transformative domain. At the elemental scale, the fiery rocks and the infused water are placed in the firebox’s interior, the sweatbath’s smallest center and transformative hearth, which without, the sweatbath would cease to function. This central point becomes the *axis mundi*, constructed through centering the sweatbath’s physical and spiritual elements. The Maya represent *axis mundi* with mountains, pyramid temples, and cosmic world trees, among others. It is a point of convergence, a liminal place, where space and time cease to function conventionally, and past and present, along with humans and inhabitants of the tripartite universe comingle.\(^91\) The firebox is the sweatbath’s utmost sacred space, a liminal place and portal for divine communication, where the four horizontal quadrants and the tripartite vertical layers physically and experientially converge. It visually expresses sacred space and indicates the center of the world, a “break-through from plane to plane,” and where, “an opening has been made, either upward (the divine celestial domain) or downward (the underworld, the world of the dead). The three cosmic levels of earth, heaven, and the underworld are put in communication.”\(^92\)

The sweatbath structure is a sacred domain and when activated through ritual it becomes an *axis mundi*, a liminal zone for accessing the supernatural realm of the ancestors.\(^93\) Palenque’s symbolic sweatbaths emphasize ancestral lineages and were the birthplace of the mythological deities, thus connecting all the present generations to those of the past, via the sweatbath. Yaxchilán’s ball court markers contain ancestor cartouches with the portraits of past rulers’ in the center, conveying the ancestors’ enduring watch. The K’iche Maya and other Maya communities still commonly summon ancestors during rituals because they are “the most important supernatural component,” and significantly impact everyday life.\(^94\) The burying of ancestors, idols, and offerings in homes and ritual structures emphasizes their importance, and the sweatbath’s connections with caves strengthens the idea of summoning the ancestors because lineage leaders are buried in caves.\(^95\)

*The Affecting Presence and Sweatbath’s Soul: Setting into Motion*

For the Maya and many traditional cultures art and architecture are living entities. In unique situations, ritual objects and subjects created, such as sculpture, dance, graphics, music, architecture, drama, verbal narrative, costume, and poetry are imparted with an “affecting presence.”\(^96\) An affecting presence is a ritual object or subject that has an aura or mystique, and is created with specific intention to be a “repository of the divine,” and for ritual use. The object’s creation is performed with utmost care, respect, craft, and material, accompanied by rituals throughout the creation process and its later use: “the creation of a work of art itself may have been conceived as the infusion of matter with spiritual power, while ritual use enhanced that power.”\(^97\) Objects with an affecting presence are “accorded special treatment,” given offerings, sacrifices made on their behalf, and “receive the attentions and services accorded a person.”\(^98\) Therefore, they are given names, clothed, adorned, fed, danced for, initiated, given souls, and

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91 Egan, *New Perspectives on the Quatrefoil in Classic Maya Iconography*, 83.
93 Child, Mark, *The archaeology of religious movements: the Maya sweatbath cult of Piedras Negras*. Ph.D. Dissertation (Yale University, New Haven, CT, 2006), 378; Looper, *Lightning Warrior*, 72. In 1-82 where the sweatbath is located, pieces of pyrite mirrors were found, and mirrors are associated with the supernatural realm.
95 Brady and Prufer, *In the Maw of the Earth*; Prufer and Brady, *Stone Houses and Earth Lords*.
sometimes killed.

In many instances sweatbaths are bestowed an affecting presence. Contemporary sweatbath construction begins by identifying an auspicious site, and when breaking the ground, offerings are made to earth and buried in the sweatbath’s floor. When construction is complete, just like a newborn, the sweatbath receives a celebration for its “warming,” its “initiation” ceremony. At times the sweatbath is dressed, decorated in candles and flowers, offered food and drinks, danced for, given a name, godparents, and bestowed a soul; it is brought to life, and sometimes later killed, destroying the structure or ceasing to use it. The Tzotzil and Tzeltal Maya perform a “first warming ceremony” to thank the gods for the resources, placate the building materials’ souls, and animate the sweatbath’s soul. The center and four corners become processional points, punctuating movement and sacred places for offerings, much like those of agriculture rituals. A typical ceremony begins by digging a center hole for offerings, sacrificing a live chicken, pouring the blood inside the hole, cooking the chicken at a nearby house, saving the broth, bones, and chili peppers, and placing them inside the center hole on top of hot rocks. Offerings are made in the form of the quincunx by pouring broth and placing pieces of the sacrificed chicken meat at the base of each corner post, and this feeding gives the sweatbath its strength. Once fully heated, the male family members enter the sweatbath for the first time, ensuring it functions properly and once deemed safe, women and children enter to bathe. In the Oxchuc Maya community, when the sweatbath has dried it is heated, and an old man or woman makes offerings and bathes with a rooster before others are allowed to enter. Another Oxchuc warming ritual begins with sacrificing a rooster and offering its blood over the hot rocks, followed by the family bathing inside. Throughout its life offerings will be made in return for good health and as an act of thanksgiving.

In some situations, when the sweatbath is not functioning well or causes illness, it is killed or let die with a termination ritual. In Central Méxiko’s Santiago Tepopula, a sweatbath named Barbara, which had been in use for over thirty years was causing pain and health problems to its bathers. A priest performed a termination ceremony, praying to her, thanking her for her service, offering her some aguardiente, and letting her die.

Termination rituals exist throughout Mesoamerica and Landa describes new year renewal ceremonies, “sweeping ceremonies,” when domestic objects were gathered and dumped as sacred trash outside of town. Termination was a type of renewal, and “intentional breakage or destruction of a work of art was also an essential part of the life history of the object, and its power was thereby released to be put to some other use.” Smashing and breaking objects such as vessels, incense burners, figurines, and idols for example, “releases their soul,” and buildings are ritually abandoned by destabilizing the structure by removing a corner posts or the roof. Often during these processes a priest or curer is present, incense is burned, offerings are made, and prayers are said.

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99 Moedano, “El temazcal,” 282; Groark, “To Warm the Blood, to Warm the Flesh,” 34
100 Reyes, El agua en la cosmovisión y terapéutica de los pueblos indígenas de México, 108-109. In some of the contemporary sweatbaths there are signs over the sweatbath with their initiation date.
101 Groark, “To Warm the Blood, to Warm the Flesh,” 35-38.
102 Ibid., 39.
103 Ibid., 40.
104 Ibid., 41.
105 Reyes, El agua en la cosmovisión y terapéutica de los pueblos indígenas de México, 108.
106 Ibid., 108-109. It is not mentioned what was done to the sweatbath.
108 Loope, Lightning Warrior, 21-22.
109 Lucero and Fash, Pre-Columbian Water Management, 62.
110 Ibid., 62.
5.3 The Liminal Landscape: Earth, Water, Sky

The sweatbath is embedded in a liminal landscape located near physical and symbolic thresholds, transitional zones of the earth, water, and sky. Over half of the sample group sweatbaths are located on the edge of flat space, at the top or bottom of a topographic change, a transition from flat to steep. In addition, nearly one third of the sample group sweatbaths are located near water features, primarily rivers and streams, but also sacred cenotes and springs. Water was essential for survival, critical to the agricultural process and symbolic of birth, death, rebirth, and transformation. Water was a portal, a threshold between worlds that upon penetrating the surface, one made passage into the underworld. Lastly, the sweatbath is connected to the sky through the moon goddess, a transformative and liminal deity, and a few unique sweatbaths situated among buildings influenced by the celestial bodies’ movements. Together, the three aspects of earth, water, and sky reinforce the sweatbath’s liminal qualities, integrated and shifting between the seasons and cycles.

Earth

Topographic transitions characterize the majority of sweatbath landscapes. A natural topographic shift from flat to steep terrain occurs for half of the sweatbaths, and when no natural topographic change exists, terraces of varying heights artificially elevate the sweatbath. Together, almost all of the sample group sweatbaths (27/31) are near a natural or artificial topographic transition, almost always occurring off the sweatbath’s back, ascending up a mountainside or descending down into a steep ravine, valley, river, or cenote. Likewise, the sweatbaths face the ordered space of plazas, temples, ball courts, stairways, and elite residences, and away from the sloping natural terrain devoid of physical structures.

When situated on the hilltop, the sweatbath appears larger than in actuality, like a temple on a mountaintop, and when at the base of the mountain, it appears like a cave, opening into the mountain’s interior, animated with water descending down and around it. This transitional setting alters the bathers’ experience, as entering the sweatbath evokes the sense of entering a cave, a liminal place, going down into earth or the dark depths of the steep mountainous backdrop. Entering is experientially a descent into the womb of Mother Earth, reinforcing the liminal qualities of the sweatbath’s conception and ritual.

Water

Water contributes to the sweatbath’s liminal landscape, an essential component to the sweatbath ritual’s transformation, and rivers, streams, springs, waterfalls, and cenotes are present at a third of the sweatbath landscapes (11/31). Water fluctuates seasonally between the wet and dry seasons, physically changing the surrounding landscape and topography. For the Maya water emerges from inside the earth, concealing and revealing openings into the earth, symbolic thresholds that when penetrated allow entrance into the underworld and begin the journey of death and rebirth.

At Yaxchilán the Usumacinta River illustrates water’s transitional qualities, rising and falling significantly between the wet and dry seasons and drastically changing the landscape through which it flows. During the dry season the Usumacinta River is a small jade colored river meandering through the sandy riverbanks, larger river boulders, and steep earth walls scouring out during the rainy season. In the wet season, the chocolate-colored river carrying large amounts of sediment flows swiftly forming whirlpools above hidden boulders, concealing the valley, steep embankment, and vegetation. At Yaxchilán the Usumacinta doubles in width, rising up a few meters short of the Great Plaza’s elevation becoming part of the ceremonial landscape where two

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111 The majority of the sweatbaths on the top of the inclines were part of ceremonial complexes (7/9), while those at the bottom of the inclines were predominantly elite residences (4/6).

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sweatbath are situated. During the rainy season the river’s presence is visible and audible, and the surrounding jungle vegetation is fully leafed out and a deep luscious green color. During the dry season the Usumacinta is still visible, yet far down, exposing the steep embankment and trees intermittently rooted in. Vegetation becomes a more subdued shade of gray green, and many of the trees still have foliage, but much less, and dry leaves and dead grass cover the ground surface. River activity most likely fluctuated with the river’s elevation; higher water volumes made the river more navigable, thus more active, while low water levels resulted in an inactive state and diminished travel.

Water encompasses themes of birth, rebirth, and transformation, transpiring in the watery landscapes of springs, mountains, caves, and sweatbaths. When activated the functional sweatbaths are converted into a watery portal, a liminal zone where the supernatural realm is accessed, and where individuals are purified and reborn. At Palenque, the Lakam Ha’ Spring and the symbolic sweatbaths are watery mythological portals where the deities from the previous and current generations were born. At Chichen Itza, the Sacrificial Cenote was a portal to the underworld, revealing features underneath the earth’s surface such as caves, pools of water, deep caverns, and beams of sunlight from the middleworld. Chahk the rain god dwelled in these waters, and fertility rituals and offerings were performed casting figurines, precious stones, and humans into the deep sinkhole, which after penetrating the water’s surface, were believed to have entered the underworld. Water features like these were transitional realms, mediating between the living and dead, ordinary and supernatural, gods and humans, and the physical and symbolic.

Sky

The celestial bodies, distant yet powerfully permanent forces, are a part of the sweatbath’s liminal landscape. Not only is the sweatbath connected to the moon goddess, in some cases its siting is influenced by the sun’s movements and its rituals were coordinated with unique celestial conjunctions. The celestial bodies complete the Maya cosmological triad of earth, water, and sky, their cycles and transitions interrelated and tethered together. The celestial bodies’ position in the sky indicates the arrival of wet and dry seasons (water), informing farmers when to plant and harvest their crops (earth), and perform rituals for the gods’ satisfaction.

The Moon

The sweatbath is connected to the moon goddess overlapping themes of transformation, fertility, midwifery, divination, and sickness. The moon goddess is associated with the conch shell, a “generative symbol relating to birth rather than death,” and “evokes a connection to the underworld, the place where the moon dies and is reborn.” There are various representations of the moon goddess, however, of particular interest is Goddess O, an aged goddess frequently depicted wearing a serpent headdress and pouring water. Goddess O is of particular interest to the sweatbath because she is connected to the Yucatec moon goddess, Ix Chel, who overlaps with Toci and Tlazolteotl, the Central Mexican sweatbath goddess, both associated with curing, divining, weaving, and childbirth. Ix Chel is the moon goddess to whom many shrines along the Yucatan’s eastern coast and several important pilgrimage destinations are dedicated including Tulum and Cozumel. As previously described, the murals at Tulum are where the doubled

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112 Stuart and Stuart, Palenque: Eternal City of the Maya.
113 Roys, Ralph L, The Book of Chilam Balam of Chumayel (Forgotten Books, 2008), 122-123.
114 Millbrath, Susan, Star Gods of the Maya: Astronomy in Art, Folklore, and Calendars (Austin: University of Texas Press, 1999), 34.
115 Ibid., 119. The Moon goddess is also associated with rabbits, the jaguar war god (dry season), the water-lily jaguar, jaguar paddler (dry season), and the hero twin, however for brevity I do not discuss them.
116 Millbrath, Star Gods of the Maya, 141, 142.
117 Millbrath, Star Gods of the Maya, 141, 143. Goddess O is also associated with Cihuacoatl, a warlike goddess, associated with serpents, death imagery, and implements associated with weaving. Tozzer, 1941; 129.
118 Miller, Arthur G., On The Edge of the Sea: Mural Painting At Tancah-Tulum, Quintana Roo, Mexico (Washington, D.C.: Dumbarton 220
headed Janus-like image, twisted serpent bodies/cosmic umbilical cords, and moon goddess are illustrated. In the Temple of the Frescos (Structure 16), the aged moon goddess in the bottom right corner of Mural 2 is “carrying a serpent staff in her hands and a maize symbol on her back, suggesting her association with agriculture.”119 She is aged, with a wrinkly face, and nearing the end of her life, represented by the waning moon descending into the underworld prior to conjunction.120 Milbrath believes the complete mural shows her about to be devoured by the “reptilian jaws of the earth monster,” and posed in a liminal state between the world of the living and the dead.121 While no precise connection is evident in the murals, the fact that Tulum and nearby Cozumel are pilgrimage sites where women journeyed for fertility, Miller believes these murals are connected to the “lunar cult dedicated to midwives,” and the aged waning moon goddess.122 As previously discussed, midwives aid pregnant women though pregnancy, their liminal period, use the sweatbath to help mothers give birth, and is where their pollution, their liminal state, is washed away. When the moon, located between the world of the living and the dead, nearing the end of the waning phase before its rebirth as a new moon, it resonates with the sweatbath ritual, similarly negotiating the world of the living and the world of the dead before transformation and rebirth.

The Maya believe the moon and the other celestial bodies pass through liminal moments, both auspicious and ominous. When the moon disappears during conjunction the Ch’orti’ Maya believe the new moon is visiting the land of the dead, the Tzotzil Maya believe the new moon is dead and evil is keeping it from shining, and the Yucatec Maya believe the moon is in a watery place such as a cenote, well, or lake.123 For the Maya Venus’ disappearance on the western horizon and during the helical rising caused great fear: activities were restricted and protective measures were taken, such as closing windows and doors, and staying inside.124 Sweatbaths such as at those at Uxmal and Chichen Itza, and Tulum aligned with important structures, royal courts, and observatories, which charted Venus’ movements. At Tulum the structures are believed to have been faced away from Venus’ rising on the eastern horizon because it carried ominous underworld forces, however, at Chichen Itza and Uxmal the structures’ doorways and windows are aligned with its rising on particular days, and perhaps indicated the arrival of the wet and dry seasons.125 Their absence from the celestial domain was a liminal time, thus their reappearance on the eastern horizon was a triumph over the underworld, and even though they sometimes still carried ominous powers, their rising was considered a rebirth.

Lunar and solar eclipses are liminal times because they bring illnesses, bad spirits, cause famines, destructions, prevent machinery from working, and cause harm to pregnant women.126 The Kaqchikel Maya believe when solar eclipses occur evil spirits emerge from the depths of the earth, and the moon or sun is dying because of an illness, which can make others ill.127 The K’iche Maya likewise believe the sun (moon) is dying and they close up their houses, cover their bodies, and avoid looking at the eclipse. Some people however, cover their bodies and venture to the hill-

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119 Milbrath, Star Gods of the Maya, 148.
120 Ibid., 148.
121 Ibid., 148.
123 Girard, Rafael, Los Chortis ante el problema maya: historia de las culturas indigenas de America, desde su origin hasta hoy. (México City: Antigua Libreria Robredo, 1949), 467-468; Milbrath, Star Gods of the Maya, 27.
124 Miller, On The Edge of the Sea, 86.
125 Miller, Arthur G. On The Edge of the Sea. Sprajc, “Astronomical and Cosmological Aspects of Maya Architecture and Urbanism.” 308-309. Sprajc believes possibly the Governor’s Palace alignment is also related to the indicated of the wet and dry seasons because when Venus disappear behind the palace during some of the cycles, it also coincided with the beginning of the wet season.
tops making noise so the sun (moon) will not die. Eclipses are believed to cause many defects such as blindness, muteness, deafness, and harm to pregnant women, as previously mentioned. Agriculture and Ritual

Agriculture and rituals are linked together because the celestial bodies influence the seasons and when the land is worked. Agriculture is a community’s pinnacle of operations and focus, an effort achieved by the collective work of the rain gods, fertility gods, assistance of the celestial bodies, ruler, priests, and community. Related to the human gestation cycle, priests use the 260-day ritual calendar in combination with the sun's positions and landscape features to determine the zeniths, nadirs, solstices, and equinoxes, indicating when the various agricultural practice such as clearing and burning, planting, and harvesting should commence. Because of the diverse latitudes, elevations, and climatic conditions of the Maya area, the planting season varies and each community adjusts their agricultural season appropriately to the wet and dry seasons. Furthermore the timing is not exclusively determined by the calendar and the sun, but is fine-tuned by the constellations and the moon’s phases. For example the Ch’orti’ Maya shift the beginning of the agricultural year to begin with the crescent moon, the K’iche Maya plant by the calendar and harvest after the full moon, when it is less likely to rain, and the Kaqchikel Maya beginning planting on the third day of the new moon so the crops will grow more quickly and ripen earlier.

The celestial bodies influence the agricultural cycle, shifting between the rainy and dry seasons, and it is believed that many of the buildings in alignment with the sun’s various positions were originally constructed to inform the agricultural process’ timing. The E-Group architectural complexes combined with the pyramidal temples, and general orientation of many buildings, are believed to have indicated the solstice and equinox positions on the horizon and the zeniths and nadirs vertically overhead, initially marked with temporary markers and later constructed as permanent structures for rituals. It is believed that ball games were played on equinoxes, kings often assumed power near the summer solstices, and major planetary conjunctions were observed and anchored important rituals, such as initiations and military campaigns. These celebrations reinforced the king’s responsibility, managing life forces, agricultural sustenance and growth, rituals, and auspicious moments allowing the rulers to communicate with the other worlds, linking earth, cosmos, and king with the divine.

Charting the Sun’s Movement

A few unique sweatbaths, previously mentioned in Chapter 4, are situated in landscapes referencing the celestial bodies, although they might have originally also been used to indicate the agricultural cycle. Yaxchilán has two sweatbaths in the Great Plaza, perpendicular to the

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128 Ibid., 404. The people would look at the eclipse’s reflection in a bowl of water.
129 Milbrath, Star Gods of the Maya, 27.
130 Milbrath, Star Gods of the Maya, 13; Girard, Los Chortís ante el problema maya, 437. Remington, “Current Astronomical Practices among the Maya,” 403. The 260 day ritual calendar had various names: Cholq̣uh (K’iche) Tzolkin (Yucatec), tonalpohualli (Aztecs).
131 There is plenty of ethnographic information to show the differences between the southern lowlands, the northern lowlands, and those that live in the Chiapas and Guatemalan highlands.
132 Girard, Los Chortís ante el problema maya, 452-463.
137 Juteson, “Ancient Maya Ethnoastronomy,” 343.
main axis, where several buildings generally align with the winter solstice.\textsuperscript{138} The Maya do not always coincide all rituals on the exact solar day of the year, but choose days generally near them and usually within days. The exact position is not always the determining factor, but when its movement becomes noticeable, hinging back towards its other destination or departing from a stationary position. Lastly, as seen with agricultural rituals, frequently the moon’s phases influenced, if not determined, the precise day for the ritual.

One known example of a sweatbath, Palenque’s Temple of the Sun, not only is connected to sun’s physical movement, but charts it, illuminating the interior and its architectural features at different angles for the summer solstice, zenith, equinox, and nadir (Figure 4.40, 4.41, 4.42).\textsuperscript{139} The sun’s position in the sky, seen from the Temple of the Sun and looking outwards, uses the landscape and buildings to chart the sun’s rising position when it becomes visible: at summer solstice it rises just to the left of the Temple of the Cross, at zenith it rises above the Temple of the Cross, at equinox it rises in a slight valley near the base of Yemal K’uk’ Lakam Witz, at nadir it rises out of the steep hillside, and at winter solstice it rises above the top of Yemal K’uk’ Lakam Witz, more or less above the Temple of the Foliated Cross (Figure 4.43).\textsuperscript{140} Thus, one inhabiting the Temple of the Sun on and near those days would be able to use both reference points, the angle of the internal rays of sunlight and the sun’s position in relation to the larger landscape.

Additionally, the tablets inside the Cross Group’s symbolic sweatbaths describe three rites of passage, two of which, the heir designation and accession to the throne, are connected with three other separate rituals, occurring not on the same date, but when Jupiter was in the same position in the sky, visibly departing its stationary point.\textsuperscript{141} Similar to the agricultural cycle, the heir designation date was fine tuned to coordinate with the arrival of the new moon, which would have been its first appearance after conjunction, its rebirth.\textsuperscript{142} Jupiter’s position and the appearance of the new moon most likely created an auspicious moment, which was anticipated and waited for it order to celebrate the rites of passage, offerings, and posthumous accession.\textsuperscript{143}

The sweatbath’s landscape brings together earth, water, and sky, all with distinctly inherent liminal qualities, which reveal and reinforce the sweatbath’s liminal nature. The sweatbath sits upon liminal earth; it is topographically transitional, a physical edge between flat and inclined land or a shift from water to land, both reinforcing the experience of entering into earth, into a cave, the dangerous underworld. Similar to the celestial bodies, water’s presence in the sweatbath landscape fluctuates between the wet and dry seasons, seasonally transforming the landscape and water features. Symbolically water is a liminal zone, a threshold between worlds, and it transforms the space it inhabits and those who inhabit it. While only a few known sweatbaths are physically influenced by the celestial bodies, yet quite poetically at the Temple of the Sun, the connection between the sweatbath and the celestial bodies deserves further attention, from both the physical and ritual perspectives, and it is possible more alignments exist but are

\textsuperscript{138} The buildings I consider generally aligning with the winter solstice are near 118 degrees east of north and the winter solstice sunrise is at 114 degrees east of north.
\textsuperscript{140} Ibid., 329.
\textsuperscript{141} Lounsbury, Floyd G., “A Palenque King and the Planet Jupiter,” in \textit{Foundations of New World Cultural Astronomy}, edited by Anthony Aveni (Boulder: University of Colorado Press, 2008), 594-596. Jupiter’s journey around the sun takes 11.86 years. These dates fall within days of Jupiter departing the stationary point. The largest number was 14 days which was with the heir-designation event which also occurred on a new moon, perhaps the reason for its “delay.”
\textsuperscript{142} Lounsbury, “A Palenque King and the Planet Jupiter,” 595-596. Remington, “Current Astronomical Practices among the Maya,”; Girard, \textit{Los Chortis ante el problema maya}, 466; The celestial cycles and agricultural cycles were congruent with those of man, and thus for example, the moon’s phases are linked with the life of a woman, its waxing phase associated with the young woman and its waning phases associated with an older woman. Thus the waning moon, the aged moon goddess, would reappear after its conjunction, as a new moon, reborn and beginning anew the next phase.
\textsuperscript{143} Lounsbury, “A Palenque King and the Planet Jupiter,” 592-593.
currently unrecognized. The celestial bodies generate liminal moments, both auspicious and ominous, that impacted the agricultural cycle and the rituals performed. Because each celestial body has its own frequencies, transitional moments, and associated dangers, together they composed a complex celestial calendar, constantly in flux between unique individual alignments and rare celestial conjunctions. The sweatbath’s landscape brings together liminal qualities of the surrounding environment through its relationship with the earth, water, and sky, which are tightly interwoven and reflect in the sweatbath a similar transitional and transformative nature.

5.4: The Ritual: The Liminal Experience

Each aspect of the sweatbath expresses liminality: its conception, construction, landscape, and rituals performed. Purification is fundamental to the transitional and transformational process and is used as a process of eliminating impurities, the harmful, the past, and the dead in an act of rejuvenation and renewal. Girard describes how the Ch’ortí’ Maya liken the treatment of planting a corn seed to that of a human burial and transformation, “the natives believe the dead suffer the same process as a seed’s disintegration to return as a new form of life. For this they practice the ritual of pouring a jug of virgin water over the tomb, to stimulate the transformation process of the cadaver, the same as how they do in the temple and in the field, to magically bring the rains that provoke the transformation from a seed into a plant.”

The sweatbath’s hot vapors encase the body and the condensation collecting on the ceiling falls like raindrops, transforming the “dead” bathers from their impure and polluted state into new individuals, much like the seed and the cadaver. For the Maya, purification rituals are performed with rites of passage, rites of initiation, rites of participation, rites of performance, and rites of affliction. Purification removes the corporeal and spiritual pollution, bad airs, disease, sin, and impurities in order to partake in ritual activities such as the ball game, dances, entering the sacred temples, making sacrifices, etc. Music, dance, diet, ingesting drugs and intoxicants are some of the many ways traditional cultures purified and cured themselves, and the Maya also use shamans, medicinal plants, divination, ingestion of food and drinks, sacrifice of animals, visiting shrines, lighting candles, and saying prayers, to mention a few. Most importantly, the Maya steam the body in the sweatbath, in combination with herbal remedies, massages, teas, food, as a means of removing the pollution and restoring one’s heat and equilibrium.

Sweatbath Rituals

Purification and Initiation Rituals

Birth is a first rite of passage, an entrance into the world, initiation into the community, and a transitional time for the mother as she is reinitiated into her own community. Biologically the baby enters the world at birth, however, it is usually socially introduced at a later baptism. A series of birth rituals are performed before the baby’s “baptism,” such as “the purification of the birth pollution, the sexual identification of the fetus, the safety of the mother and child, and the conferral of social status when the baby is named and introduced to the larger community.” These rituals often coincide with those for the mother, such as herbal baths, which last a few days to over a month, and “gradually reincorporate mother and child into the family and then the larg-

144 Girard, Rafael, Los Maya: su civilización, su historia, sus vinculaciones continentals (México City. Libro México, 1966), 129.
145 Dow, James W., “Central and North Mexican Shamans,” in Mesoamerican Healers, edited by Brad R. Huber and Alan R. Sandstrom (Austin: University of Texas Press, 2001), 85. In Central and North México cleaning rituals, also known as sweeping rituals, are performed to remove bad airs and include the passing of cotton, paper, chicken, egg, branches, or feathers to absorb the ill air.
147 Lozoya and Zolla, La medicina invisible, 14; Bell, Ritual, 119.
148 Bell, Ritual, 94.
er village community.” The seclusion period usually ends with a ceremony.

One of the first rituals performed after birth is the baby’s separation from the mother, the severing of the baby’s umbilical cord, an individual and collective rite. Las Casas and Fuentes y Guzman describe rituals where the umbilical cord was placed over an ear of corn and severed with a new knife, and the corn kernels were later planted and harvested for the child. Today in Mesoamerica and many of the Maya communities the midwife most often cuts the umbilical cord, separating it from the placenta, with a cane or bamboo tool, and although there is some dislike for metal tools, knives, scissors, razor blades and machetes are still used. The baby’s umbilical cord is cauterized, sometimes with a candle’s flame, a hot knife, or alcohol, and wrapped with cotton gauze. Sahagun wrote that when the cord fell off, if it was a boy it was given to a soldier to bury in the battlefield in hopes he would become a warrior, and if it was a girl it was buried near the house so she would be domestic and like to cook. In other instances the Tzotzil Maya hang the umbilical cord high in a tree for a boy so he can later climb high to cut fruit, and if it is a girl the father puts it near a fire so the girl will be a good helper and a good wife. Many midwives observe and read signs, including those of the umbilical cord, to determine the baby’s future because part of their divine mandate is to care for the infant’s spiritual embodiment.

The placenta, which nourishes the baby while in utero, also receives ritual treatment. The placenta is often wrapped in a piece of muslin, cotton, or a jar and is buried behind the house or very near the sweatbath because the placenta is believed to “live on.” In the Maya community of Santiago Chimaltenango, Guatemala, the placenta is buried underneath the floor of the family’s sweatbath so in the future whatever illness the child has, they can make offerings and say prayers where “they were bathed for the first time,” and where the “placenta lives.” This sweatbath is called their “natal sweatbath,” an extension of the individual, and to where they return throughout their life for rites of passage and important ceremonies. As previously described in Chapter 1, Side IV of the Birth Vase Taube believes illustrates the afterbirth being buried in a central hearth as an offering to the gods, an exchange for the baby, further supplemented with sacrifices made ensuring mother and baby’s safety. Burying the placenta in the sweatbath closely links body and building to a shared world, similar to a king’s interment inside a temple.

During pregnancy and postpartum the mother is in a polluted state which she passes on to her child, and therefore they both receive a series of baths followed by a final initiation, reintegration of the mother and the baby’s initial integration into the community. Sahagun wrote

Ibid., 96.

Ibid., 96.

Van Gennep, Rites of Passage, 51.


Sahagun, Historia general de las cosas de Nueva España, 462.

Holmes and Guiteras, “El ciclo de vida,” 230.


Van Gennep, Rites of Passage, 50; Reyes, El agua en la cosmovisión y terapéutica de los pueblos indígenas de México, 107; Houston, “Symbolic Sweatbaths of the Maya,” 139.
during colonial times that anyone who came to see the baby and mother would wash their knees and all their joints with ashes, and a candle was burned in the room for the baby, which should not stop burning or the baby would have bad fortune. 163 Today the midwife oversees the postpartum care of mother and baby, giving the mother tea and nourishment to heal the body, dietary advice, warm abdominal massages to help the uterus contract, and applies herbal poultices to the baby and mother in the sweatbath, removing dangers from their bodies. 164 Not all midwives use the sweatbath because they are not accustomed to it, and instead administer regular herbal baths. Each community has a specified number of baths and set number of days, ranging from four days to forty days, which need to be taken to help the mother’s body recover and to protect the community. 165 Often bathing is a social time for the mother and she often bathes together with her close female relatives, as seen in Tzeltzal Maya communities. 166

After the postpartum restrictive period and the specified number of baths are given, mother and baby transition out of the liminal state; the baby is initiated into the community and the mother returns socially from childbirth. 167 A rite of incorporation is performed for the baby, initiating them into the community, giving them a sweatbath, and bestowing them their official name. 168 In the Ixil Maya communities of Guatemala, the cleansing is concluded with a final sweatbath in which, “the midwife cleans out the bed and the sweatbath; buries the accumulated material; lights candles, incense, and copal; and spreads flowers inside the sweatbath while praying to Saint Ann, God, Jesus, and El Mundo, giving thanks and asking for protection for the child.” 169 This final sweatbath concludes the midwife’s duties, integrates the baby into the community, and reintegrates the mother with the family and community. 170

Some Mixtec communities have a party after the twenty days of bathing which coincides with the last day of the mother’s ablation. The closest friends and family are invited for the baptism, and “this day more than six chickens are killed, white meat is cooked in boiling water, while the women prepare with caution and diligence, the bean mole, for all the effort that has been made, and now that the mother has passed the dangerous epoch and she is alive.” 171 The Totonacs in Central México ask the family healer to conduct the rite, beginning the night before with a vigil, offerings, and dances. 172 The following morning, the sweatbath is decorated in flowers, heated up, and the midwife enters it and pours water over the hot rocks, twelve times for the girl and thirteen for the boy. Then she takes the baby in her arms, enters with it into the sweatbath, slapping the skin with the herbal branches the same number of times water is poured over the rocks. Then the baby is given back to its godparents and they dance with the baby in their arms. 173 In Central México traditionally the baby is named after a family relative, a grandparent, aunt or uncle, older sibling, or parent, or in other cases if it is a girl, she receives the name of a grandmother, and if it is a boy, he receives the name of his father. 174

For the Nahua, when newborns receive their first sweatbath, they also receive their lifelong tonalli, or soul, from the gods. Tonalli is considered one of the three souls located in the head, 163 Sahagún, Historia general de las cosas de Nueva España, 410.
164 Orellana, Indian Medicine in Highland Guatemala, 68; Cosminsky, “Maya Midwives of Southern México and Guatemala,” 197.
166 Cosminsky, “Maya Midwives of Southern México and Guatemala,” 198, 200.
167 Van Gennep, Ritos de Pasaje, 50.
170 Ibid., 200.
172 Ichon, La religion de los Totonacas de la Sierra, 329-330; Franch, Alcina, Ruiz, Ponce de León, El temazcal en Mesoamérica, 126.
173 Ichon, La religion de los Totonacas de la Sierra, 329-330; Franch, Alcina, Ruiz, Ponce de León, El temazcal en Mesoamérica, 126.
which maintains one’s overall temperature. The two other parts of the soul is the *teyolia* located in the heart, associated with feeling and thought, and the *hiyotl* located in the liver, associated with one’s passions and vigor. *Tonalli*, *tona* meaning “heat” or “warmth” is the part of the soul bestowed during the baptism. One’s birthday is interpreted through the *tonalamatl*, the “book of the days or fates,” to determine future health, length of life, tragedies, and sicknesses one will encounter. However, the date is not completely fixed and can be modified by the “baptismal” day, which the priest shifts to avoid bad omens. Sullivan elaborates on this ritual:

The sun was the best source of *tonalli*, but it was thought dangerous to expose a newborn to it without knowing whether the child’s birthday was a good or bad *tonalli*. Therefore it was necessary to supply another form of heat. When a baby was born, a fire was lit in the room and kept constantly burning for four days until the baby was ritually bathed, named, and assigned his or her definite *tonalli*. The bath ceremony, a rite of passage, stimulated a rebirth. At that time *Ometeotl* is asked to give the child additional *tonalli*, and *Chalchiuhtlicue* was implored to provide additional *teyolia* (the other part of the soul) for the baby. *Tonalli* was considered a personal link with the heavens and the deities.

The sweatbath often, but not exclusively, is where the baptismal ceremony is performed. Bathing the newborn is illustrated on Side II of the Classic Maya Birth Vase, and Taube writes, “the seated midwives hold the containers used for the ritual bathing,” a ritual bestowing the life long soul to the baby. The initial sweatbath bath is considered a heating up of the soul, to be later stoked throughout one’s life during important rituals and illnesses.

*Ancient Rites of Passage*

The sweatbath removed pollution and impurities from individuals before partaking in rites of passage, rites of performance, and rites of participation. At the micro scale the sweatbath is a ritual composed of its own pre-liminal, liminal, and post liminal rituals, such as ingesting food and drink, saying prayers, making offerings to the gods, starting the fire, heating up the fiery rocks, choosing the herbs, collecting the water, sacrificing animals, burning incense inside and around the bathers, honoring the rocks, pouring the water on the fiery rocks, singing and playing instruments, breathing steamy air, entering and exiting the sweatbath, etc. Conversely, it is also one ritual, a pre-liminal or liminal ritual, embedded within a larger ritual narrative, such as a rite of passage, participation in the ball game, preparation for war, a dance performance, performance of rituals in sacred temples, observation of the stars, and sacrifice to name a few. At each scale it has its own transitional moments: the sweating away of impurities during the bath, purification, and emergence as new in preparation for participation or performance.

Rites of passage dramatize an individual’s transition from one phase of life or status into

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176 Orellana, *Indian Medicine in Highland Guatemala*, 28-33. Orellana makes several connections between Nahua beliefs of the soul and other Mesoamerican traditions including the K’iche Maya. Further investigation on this topic is needed to fully understand the connections.


178 The *tonalamatl* is the Aztec version of the Maya tzolkín ritual calendar.


181 Orellana, *Indian Medicine in Highland Guatemala*, 28-33; Sometimes the baby was bathed in a river.

182 Taube, “*The Birth Vase*,” 664.
It binds an individual to their family, community, society, past, and future. In ritual the body’s presence allows the individual to replicate the gods’ and ancestors’ ancient actions, gestures, postures, and words charged with meaning, often arousing the individual’s physical and spiritual awareness, particular to the self and universe. As previously mentioned, the natal sweatbath is a spiritual anchor where one’s “placenta lives on” and where an individual returns for later rites of passage, such as puberty, adulthood, and marriage, and in the indigenous communities it is still used to purify an individual before these transformations and new stages of life.

Based upon hieroglyphic texts, Houston believes the three symbolic sweatbaths of the Cross Group temples are the natal sweatbaths of Palenque’s mythological Triad Deities, and each symbolic sweatbath has a tablet, over 1300 years old, depicting a rite of passage. Together the tablets compose a ritual narrative of kingship for K’ínich Kan Bahlam, a Palencano king, performing the rites of passage of puberty (heir-designation), adulthood (warfare), and kingship (accession), which occurred in the sweatbath. Because these three sweatbaths are symbolic and as Houston points out, do not have typical sweatbath features necessary to heat up the sweatbath nor does evidence of burning exist, it is believed that a functional sweatbath must have been used. Child proposes three possible sites: an unconfirmed structure near the Lakam Ha’ Spring, the royal court’s sweatbath, or the sweatbath at the Queen’s Bath. K’ínich Kan Bahlam commissioned the Cross Group Temples to be constructed, recording these three rites of passage illustrated in the symbolic sweatbaths, perhaps to document his royal ancestry and connection to the mythological deities.

The rites of passages’ chronological order is coordinated with the Triad Deities’ birth order per their honorary temple, thus, the story commences in the Temple of the Cross (GI), then the Temple of the Sun (GIII), and lastly at the Temple of the Foliated Cross (GII). Each tablet image is located on the back wall of the symbolic sweatbath and is accompanied by a glyphic text. The Temple of the Cross text narrates the history of the previous era’s mythological deities, the ancestral lineage of the current royal family ending with K’uk’ Bahlam, and the tablet image depicts K’ínich Kan Bahlam’s pre-accession events and heir designation, demonstrating his right to the throne, decided when he was age six (Figure 3.60, 3.61). The young K’ínich Kan Bahlam is on the left at age six, on the right side is K’ínich Kan Bahlam forty-three years later on the day of his inauguration as king, and in the middle is the sacred world tree with the celestial bird on top. In the inscriptions a sequence of glyphs read, “he is purified which binds him as a person to change as a youth,” and the Maya word for “purified” is associated with “introduce” which also means, “to alleviate the cold, wind, pain, and sickness from the body.” The sweatbath would have fortified his body and soul, heating it up, and purifying it during the rite of passage for puberty. The Temple of the Sun’s hieroglyphic texts record the heir designation event, and the tablet image depicts a young K’ínich Kan Bahlam of the left offering a flint and shield, implying

183 Bell, Ritual: Perspectives and Dimensions, 94.
186 Houston, “Symbolic Sweatbaths of the Maya,” 145.
190 Stuart and Stuart, Palenque: Eternal City of the Maya, 195.
191 Ibid., 195, 198.
192 Ibid., 196-198.
194 These sweatbaths are only symbolic sweatbaths, which do not have all the typical features of a sweatbath and would not be able to generate heat. There are other functional sweatbaths at Palenque, one in the royal court, the Queen’s bath, and one unidentified structure, are potential sites where the actual sweatbath took place.
the duty of sacred warfare, on the right is the older K’inich Kan Bahlam as a warrior, and between
the two figures is the ceremonial shield and two crossed spears (Figure 3.63). In four places the
purification for the rites are mentioned, two on the tablet, one on the inner text, and one on the
outer text. The tablet text reads, “he is purified for the changing,” and “he is wrapped (accedes)
as the fifth to change as the sun face.” On the inner text it reads, “he falls from the unraveled
youthhood,” and the outer text reads, “he falls from the change.” Child explains, “the ‘falling’
verb chosen for this rite of passage deals specifically with purification, which not only signifies ‘to
fall’ in some Cholan and Yucatec languages, but also means ‘to alter or dissipate the harmony
of the wind of the body.” The alteration of the body is done by the sweatbath’s heat, eliminating
the coldness, wind, and any illness or pain, in order to transform and acquire the new identity.
In the Temple of the Foliated Cross the hieroglyphic texts record the accession rituals of
bloodletting and sacrifice, and the tablet image depicts K’inich Kan Bahlam’s accession to the
throne, which occurred with a sky event on a summer solstice and new moon (Figure 3.62). On
the right is the young K’inich Kan Bahlam standing on top of a snail shell, on the left is the older
K’inich Kan Bahlam standing on top of a sacred mountain, and in the middle is the tree of suste-
nance and growth, the maize plant with human heads as corn cobs growing on it. This tablet
depicts K’inich Kan Bahlam’s accession to kingship, and the symbolism of the tablet bestows him
the duty and responsibility of overseeing the prosperity and security of the people, as the “actor
in the cosmic process of maize’s growth, dependent on the substances of water (the shell) and
the earth (the mountain).” Together the three tablets inside the symbolic sweatbaths depict the
rites of passage of puberty/pre-accession, adulthood/warfare, and kingship/accession, which re-
quired the purification and transformation within the sweatbath. While no other known ancient
documentation so extensively records the sweatbath’s vital role in rites of passages, these tablets
confirm the sweatbath’s importance in restoring the body’s harmony and for purification, allow-
ing the transformation to occur and presenting the possibility for similar events to have occurred
at other sweatbath sites.

The Ball Game Ritual

Many sweatbaths are adjacent to important ceremonial structures, such as ball courts,
main temples, observatories, dance platforms, royal courts, and sacred natural features used for a
range of rituals. It was where the ball game was played, ritual dances were performed, kings and
elite members performed rituals, period ending celebrations occurred, priests stargazed, sacrific-
es were made, young boys were taught rituals, and warriors would have been honored. Yaxchilán
SB 17 is located roughly 65 meters to the west of the ball court, and SB 10 is roughly 40 meters
to the east of the ball court. At Piedras Negras sweatbaths are located near and in alignment
with the only two ball courts: SB N-1 anchors the southern side of the West Plaza Group and is in
alignment with the ball court and a large temple on the opposite side, and R-13, Piedras Negras’
oldest sweatbath, is located on an elevated terrace in the oldest ceremonial precinct, the South
Group Court, adjacent to the oldest ball court. In addition to the sweatbaths at Yaxchilán and

195 Stuart and Stuart, Palenque: Eternal City of the Maya, 209.
198 Child, “Ritual Purification and the Ancient Maya Sweatbath at Palenque,” 249-251. Childs notes the glyphs leem, och, k’al, hubuy,
and tikul describe transformational events, which are associated with sickness, purification, and change. Och means to enter, to
become, begin, or change.
199 Lounsbury, “A Palenque King and the Planet Jupiter,” 595.
200 Stuart and Stuart, Palenque: Eternal City of the Maya, 209-211.
201 Ibid., 209.
202 Yaxchilán has another ball court, Structure 67, on the far eastern end of the Great Plaza, and is the later of the two ball courts.
However, this ball court was constructed during the same stage as the sweatbaths.
203 Child, The archaeology of religious movements, 399.
Figure 5.05  Palenque: Section through Cross Group Temples

Temple of the Foliated Cross
Rite of passage: accession
Deity G11 (3)
Theme: Water: Agriculture middle

Lakam Ha’ Spring

Figure 5.06  Diagram of Cross Group Symbolism

Temple of the Cross
Rite of passage: heir designation
Deity G1 (1)
Theme: Celestial tallest

Figure 5.06  Diagram of Cross Group Symbolism

Temple of the Sun
Rite of passage: adulthood/warfare
Deity G11 (2)
Theme: Earth: Underworld lowest
Figure 5.07 Temple of the Foliated Cross

Figure 5.08 Temple of the Cross

Figure 5.09 Temple of the Sun
Piedras Negras, sweatbaths are located near the ball courts at many sites, and Chichen Itza’s North Temple mural walls illustrate the sweatbath’s use in conjunction with the life or death ball game ritual. The ball game was an athletic reenactment performed by male kings and elites, centered around the Popol Vuh’s mythological journey and challenges of the hero twins, Hunanhpou and Xbalanque, to the underworld. Reliefs from the North Temple of Chichen Itza’s immense ball court are a series of three murals that compose a ball game ritual narrative: the north wall illustrates the purification rites, the west wall illustrates preparations and the ball game being played, and the east wall illustrates the sacrifice.204 In detail the west wall mural depicts activities leading up to the ballgame being played for a change in rulers: birdmen are dancing towards the world tree, ritual actors hold a staff and a perforator, a smoking censer is present, two warriors and a bird are leaning over a kneeling man, and a feather-draped man is delivering a ball to a group of seated people.205 The north wall mural depicts purification rites: a penis is being perforated, a blowgunner is shooting birds out of a tree, and inside a sweatbath vomiting is being induced.206 The eastern wall depicts events following the ballgame: a dying player has blood gushing from his neck, the winner is hovering over the loser’s body, and the sacrificed body is bundled up with warriors paying tribute to it.207 This mural indicates that the sweatbath was not only used in preparation for the sweatbath, but it was one of the purification rituals performed amongst others.

Many other sweatbaths are located in ceremonial plazas where many rituals would have occurred, and for which further research is needed. The small sweatbath at Ek Balam is located in the center of the main plaza, directly in front of main temple, and near the ball court and the observatory. At Edzna, the sweatbath is located in the main plaza, opposite the Five-Storied Building, the site’s largest building, with a low platform on axis between the two structures. At Yaxchilán, Garcia Moll identifies four platforms in the Great Plaza’s central space, one with a stela and one with hieroglyphic stairs, and four others on the far eastern end.208 It is likely these platforms were used for dance and public rituals, and in the Small Acropolis and the courtyard near SB 48, there is a flat platform that was most likely used for dancing and rituals of a private nature. The sweatbath at Copán is integrated into a young men’s dormitory where rituals were taught, and directly in front of the sweatbath, is what Freidel, Schele, and Looper believe is a dance platform.209 At Chichen Itza, there is a sweatbath adjacent to Caracol, the observatory, and one perched on the edge of the Sacrificial Cenote. In numerous rituals the sweatbath was used as a portal, a liminal zone for divine communication with the ancestors, a place of purification to ensure one’s transformation during the liminal stage of rites of passage, and as a preparation ritual, purifying the individual before partaking in other rituals such as the ball game, dancing, and entering sacred temples.

5.5 Conclusion

The Maya sweatbath landscape was investigated and understood by connecting the work of Czech Philosopher Jan Patocka’s phenomenological text *Body, Community, Language, World* and its three life stages: rooting, projecting, and transcending. These stages were translated to three investigative phases of the sweatbath: conception and structure (rooting), the surrounding landscape (projecting), and the rituals performed (transcendence). Each phase began with Yaxchilán’s three sweatbath’s, examining the structures’ features, context, landscape, and rituals in an at-

205 See note 204.
206 See note 204.
207 See note 204.
tempt to understand each sweatbath uniquely and collectively. Within this horizon, Yaxchilán as epicenter, the findings from these sweatbaths were reflected upon and projected outwards into twenty-eight other Maya sweatbath landscapes, revealing similar landscape patterns and features embedded in the sweatbath’s landscape and clarifying ambiguous aspects presented initially by Yaxchilán’s sweatbaths. Thus projecting out and reflecting back enabled a more profound understanding of Yaxchilán’s sweatbaths and expanded the sweatbath’s scope, integrating similar but new descriptions into its overall narrative. While evidence from archaeological remnants and descriptions, architectural drawings, site visits, and photographs provide a vast amount of detail and information, it is limited requiring supplement from ethnographic, ethnohistoric, and epigraphic resources, which resulted in a complimentary symbolic narrative of the sweatbath’s physical attributes and landscape. One of the most important discoveries in the research was that the Maya landscape, in particular, that of the sweatbath, is rich and thick with meaning and symbolism and the physical cannot be understood without its complimentary symbolic narrative. For the Maya, the sweatbath was a place of symbolic and physical creation, healing, purification, and transformation, reflected in the surrounding landscape and architectural features.

The sweatbath’s conceptual rooting is grounded in its symbolism as the womb of Mother Earth, thus the structure, features, and rituals, are embedded with and encompass a range of liminal themes relating to birth and creation. Physical rooting, the structure’s physical impression into earth, is connected to birth and creation as a replica of the cosmos reiterated in numerous ways and scales of the design, each focusing on a center, the firebox being the sweatbath’s most focused center, its transformative hearth. Projecting into the world situates the sweatbath in a landscape, in a context relating and defining its presence amongst other buildings and natural features, because like humans, buildings, are “never indifferent to each other, never alongside each other like two stones,” and buildings are never confined to their walls but situated and responding to their surrounding world. Projecting into the landscape emphasizes the sweatbath’s siting in important ceremonial centers, adjacent and aligned with a site’s most important temples and ritual structures and near topographic changes where the earth transitions from flat to inclined, earth to water. Seasonally the water fluctuates, transforming the landscape’s appearance, which reinforces the transformative creation ritual performed within the sweatbath, and frequently near the sweatbath are water features, symbolic of fertility, and thresholds for birth, transformation, and death. The third landscape component is the celestial domain, distant yet powerful, their movement through the sky represents death and rebirth, evoking auspicious and ominous times, influencing the timing of social and ritual life, and impacting the built form as many buildings and landscape features were used to chart their movement. Earth, water and sky are dynamically woven together as fundamental aspects to the sweatbath’s liminal landscape, exhibiting nature’s transformative and cyclical nature. The transcendence phase investigates sweatbath rituals, those integrated into the bathing ritual and larger rituals narratives it is a part of, discovering it is a portal for accessing the supernatural realm and for birth and creation, a physical and spiritual place of purification, healing, and transformation. Liminality is prevalent throughout the three phases of investigation, continuously strengthening the sweatbath’s conception as a womb and a place of physical and symbolic birth, an ever-transforming force perpetuating life.

Yaxchilán as Epicenter: Palenque as Horizon

Yaxchilán, the epicenter for this investigation, has three sweatbaths, an abundance of artifacts preserved, is near Piedras Negras and its eight sweatbaths, and is near Palenque, which has a wealth of texts and inscriptions. Yaxchilán has an impressive list of artifacts (monuments)

210 Patocka, Jan, Body, Community, Language, World, edited by Ezarim Kohak (Chicago: Open Court, 1999), 35, 66. “We never live in ourselves, we always live among things.”
providing valuable information about its history, people, and events, however, none known directly discuss the sweatbath, or its role, restricting a more profound understanding. However, critical insight was gained through projecting out into other Maya sweatbath landscapes, and in each projection the landscape surrounding Palenque’s three symbolic sweatbaths was exemplary, both physically and symbolically. The Temple of the Foliated Cross has the largest topographic change, the Temple of the Cross was constructed facing a sacred spring, that not only runs alongside the symbolic sweatbaths, but has mythological origins, and the Temple of the Sun connects to the celestial realm through its physical siting and rituals narrated inside. While the findings at Palenque are not directly applicable to other sweatbath sites, they do provide a glimpse into what the sweatbath was and meant to the ancient Maya and the depth of embedded meaning, which at most sites has since been lost or never achieved such level of detail in its design. Palenque’s landscape reveals the sweatbath’s importance in Maya life as a ritual structure and the landscape’s meaningfulness embedded in earth, water, sky.

**Yaxchilán as Epicenter**

Yaxchilán’s three sweatbaths collectively emphasize the landscape features of earth, water, and sky, however, Yaxchilán’s SB 17 best accentuates the sweatbath landscape also prevalent in varying degrees at fourteen other sites. Located in the Great Plaza’s ceremonial core is SB 17, near the ball court, the main pyramidal structure, the Labyrinth, and other ritual structures. On a low rectangular terrace, is the compact rectangular sweatbath, a replica of the cosmos, with a tight narrow doorway spanned with a smooth lintel. The structure is symmetrical; benches are on both sides, a drain cuts through the middle, and the firebox is centered towards the structure’s back, a miniature sweatbath replica. SB 17 faces the flat plaza and off the back a topographic change occurs, which during the dry season is a twenty-meter or more descent down to the Usumacinta River and conversely during the wet season becomes a voluminous two-hundred meter wide river flowing by almost reaching the plaza’s elevation. The sweatbath is among several buildings generally facing the winter solstice, and several rituals recorded coincided with important celestial events, although the sweatbath is not mentioned.\(^{211}\) The physical landscape is thick with detail, however the sweatbath’s symbolic narrative is lacking, unlike at Palenque.

**Palenque as Horizon**

**Rooting**

Palenque’s Cross Group temples, fortunately abundant with texts and images recorded in the buildings, provide an in depth understanding of the symbolic sweatbaths and their landscape. Atypical of functional sweatbaths, the symbolic sweatbaths do not have typical features such as the drain, benches, firebox, or small doorways, nor is there evidence they physically functioned as a sweatbath, however, the hieroglyphic texts call them *pibnaah*, a sweatbath.\(^{212}\) The three structures resemble each other, are elevated on terraces, have rectangular forms, three openings on the front facade, elaborate hieroglyphic texts and tablets inside, and a roofcomb on the structure’s top. Their arrangement replicates the cosmos: a triadic temple group arranged around a four-sided ceremonial plaza, with one temple on three of the plaza’s four sides, facing inwards towards the low four-sided altar at the center (Figure 5.06). The dominant temple, the Temple of the Cross, faces the open side towards the *Lakam Ha’ Spring*.\(^{213}\) The four-sided four-cornered world is further emphasized through the tablets’ central images. The Temple of the Cross has the

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211 Further investigation needs to be done with the buildings to see if there are potential buildings that align with the sun’s placement and the arrival of the dry and wet seasons.
Principal Celestial Bird on top of the sacred world tree, which appears like a cross and extends to the four sides (Figure 3.61). The Temple of the Foliated Cross’ tablet has centered a jeweled maize plant sprouting corncob-human heads, indicating sustenance and growth, and is associated with agriculture and primordial water, vital elements of creation, sustenance, and survival (Figure 3.62).

The Temple of the Sun’s shield marks the center and two crossed spears extend to the corners (Figure 3.63). The three vertical cosmological layers of earth, water, and sky are displayed in the temple’s topographical arrangement: the tallest temple, Temple of the Cross, represents the celestial realm, the middle temple, Temple of the Foliated Cross, represents water and agriculture, and the lowest temple, Temple of the Sun, represents earth, the underworld (Figure 5.05, 5.06).

It is the cosmos, the land of the gods.

Projecting: Earth, Water, and Sky

Earth is exemplified in the liminal context through the various topographic conditions and references to caves. The most significant topographic change of all the thirty-one sweatbaths occurs at the Temple of the Foliated Cross, nestled like a cave, at the bottom of Yemal K’uk’ Lakam Witz, soaring 130 meters directly up behind the sweatbath. Earth transitions physically from extremely steep terrain into a flat manmade plaza around where three sweatbaths are arranged. Opposite the Temple of the Foliated Cross is the Temple of the Sun located on a terracing slope, typical of many sweatbaths, and as the terrain continues, it descends off the sweatbath’s back, crossing the sacred Otolum River and into Palenque’s main ceremonial core (Figure 5.05). The Temple of the Cross is elevated on its own pyramidal terrace, the most impressive of all the sweatbaths, resembling many of the impressive Maya temples, or sacred mountains, as it rises upwards over twenty-five meters (Figure 5.08).

Symbolically earth is present through several cave references. Representing a cave, the cartouche symbol is present on each temple’s roof entablature and the Temple of the Sun’s shrine is depicted as a mountain with the inner shrine as a cave. Its tablet repeats the symbol kab for earth, indicating the underworld.

The Temple of the Cross’ roof entablature of the vestibule and sanctuary are animistic beings, symbolizing the cosmological cave, and together underlining the notion of earth and cave as an aperture into the underworld.

Water, liminally expressed in the Cross Group Temples through creation, birth, and rebirth, is connected to the Lakam Ha’ Spring, the mythological beginning where fertile water emerges out of a mountainside aperture (Figure 3.53). Narrating the Triad Deities’ birth, the texts construct the ancestral lineage, linking mythological deities to current Palencomano rulers, and inscriptions inside the Temple of the Cross, facing the Lakam Ha’ spring reads, “built before the springs of Lakam Ha’, where the birds first touched the world.”

The Triad Deities were born at Matawiil, a watery “mythological setting of re-birth,” and each symbolic sweatbath honors one of the deities: the Temple of the Sun honors GI, the first born, the Temple of the Foliated Cross represents GII, the third born, and the Temple of the Sun represent GIII, the second born. Another type of birth is a spiritual rebirth achieved through rites of passage of puberty, adulthood, and kindship, illustrated in the three tablet images. In the Temple of the Foliated Cross, the young

214 Stuart and Stuart, Palenque, 199.
215 Girard, Los Chortis ante el problema maya. The Chorti Maya still use, it represents the four corners and four sides of the world with the sacred center, a symbol the Maya easily adopted from Catholicism, but which still represents the Maya cosmological diagram.
216 Stuart and Stuart, Palenque: Eternal City of the Maya, 200.
217 Ibid, 209.
figure on the right, K’ihnich Kan Bahlam, is standing atop the snail shell, the “precious shell of Matawiil” which Stuart believes is a watery place of rebirth and germination, and on the opposite side the older K’ihnich Kan Bahlam is on top of the sacred mountain, transformed into king, which occurred through the purification of the sweatbath (Figure 3.62). While the sweatbath represents the womb of Mother Earth, the domain of creation, it is the sweatbath’s watery nature that is transformative, perpetuating life and rebirth at the cosmic and human level.

Connection with the celestial bodies is the third aspect embedded in the sweatbath’s ritual landscape of the Cross Group Temples, exhibited in the Temple of the Sun (Figure 5.09). No other sweatbath known is comparable, or comes close to the Temple of the Sun’s meticulous design, which charts the sun’s yearly movements. As the sun journey’s between its northern and southern extremes, angles of sunlight entering the structure gradually shift, illuminating specific architectural features as it nears and passes the nadir, equinox, zenith, and solstice. At the summer solstice, sunlight rays penetrate on a diagonal through the northernmost doorway reaching into the southwestern corner as a small illuminated sliver of sunlight. Viewed from the temple looking out, at winter solstice the sun rises above the top of the Yemal K’uk’ Lakam Witz and slowly moves northwards down the mountain’s silhouette, reaching its summer solstice destination, just left of the Temple of the Cross. Zenith was the most important agriculture date and the days surrounding this period, the sun rises behind the Temple of the Cross, illuminating its structure and roofcomb. The Temple of the Sun measures the sun’s movements, vital to the agricultural process, and for what the king was responsible, the duty expressed on the facing tablet housed inside the Temple of the Foliated Cross.

Transcending

Rites of passage performed in the symbolic sweatbaths ritually connect the sweatbath landscape to the celestial bodies. Two of three of K’ihnich Kan Bahlam’s rites of passage, his heir designation in the Temple of the Cross and his ascension in the Temple of the Foliated Cross, occurred when Jupiter was present in the sky, more precisely when it had noticeably departed from its stationary position in the sky. While nearly thirteen other events are recorded that occurred with other celestial bodies, three other important events coincide with Jupiter’s positioning in the sky: when K’ihnich Kan Bahlam performed special rites in observance of the gods, a 12 year anniversary he would have planned before his death, and his posthumous return. The first event, his heir designation ritual, occurred after six months of double and triple conjunctions occurring between Mars, Jupiter, and Saturn, an “impressive gathering of three celestial figures-conceived to be gods,” and more precisely when Jupiter embarked from its stationary point in the sky. Additionally, the heir designation date was fine tuned to occur with the new moon’s rising. The second event is K’ihnich Kan Bahlam’s accession to rule, and Jupiter was at the same position in the sky, as it was for the third event, when he made his special offerings to the gods. Although K’ihnich Kan Bahlam died a half-year before his planned celebration of Jupiter’s anniversary passage occurring once every twelve years, it still took place under the new king, K’ihnich Kan Bahlam’s younger brother. The last date of importance, recorded on a tablet image from Temple XIV, north of the Temple of the Sun, depicts K’ihnich Kan Bahlam performing a dance, symbolizing his emergence from the underworld, the moment of his apotheosis, deifying and elevating him to divine status. The Maya planned rituals to occur with similar past rituals’ celestial phenomena as a way of fortifying their efficacy and enhancing their ritual potency, as

222 Ibid., 592.
223 Ibid., 590-591.
224 Ibid., 593.
225 See note 224.
seen with these rites of passage. Together these symbolic sweatbaths and the rituals recorded and depicted inside are connected to the movement of the celestial bodies and compose a ritual narrative that demonstrates the transformation of a king from birth, puberty, adulthood, kingship, and his resurrection as a deity. As Jupiter completes each cycle and returned again, K’inich Kan Bahlam progressed through his life cycles, his rites of passage, being energized at each interval, and finally being resurrected into the celestial domain as a god.

The landscape surrounding these Cross Group Temples is rich with texts, images, history, symbolism, and sacred natural features, much more than described, provide only a glimpse of the depth of meaning embedded in the sweatbath’s sacred landscape not available at most other sweatbath sites. Embedded with liminal qualities and narratives, this landscape underlines the sweatbath’s ritual role as a place of death, purification, transformation, communion, and rebirth. Physically this landscape is dramatic with steep jungle descents and terracing slopes, on the periphery of the ceremonial core, at the base of a mountain, and near a sacred and mythological spring. It visibly transforms throughout the wet and dry seasons and along with the celestial bodies emerging from behind the mountain’s silhouette and later descending on the western horizon.

**Maya Sweatbath Landscape and Modern Healthcare Landscapes**

*Within the Body*

This investigation of the ancient Maya sweatbath healing tradition is rooted in the awareness that the modern healthcare system and its physical settings are too frequently a hindrance to society’s health and well-being. Encompassing many factors, modern healthcare fails to recognize and integrate the nature within and around the body, or the social and emotional influences. As mentioned in the introduction, modern healthcare is specialized, diagnosis and treatment analyze the body part by part and not as a whole dynamically connected, resulting in essential aspects of health being ignored. It relies heavily on empirical data, which drives diagnosis and treatment plans, and fails to acknowledge elusive and invisible forces impacting health. Consequently health and healing are negatively impacted. Modern medical interventions are most commonly physical and pharmaceutical interventions causing subsequent interventions, while too often basic aspects of health such as diet, exercise, herbal remedies, and the body’s own natural responses and ability to heal itself are not acknowledged.

Ancient cultures, including the ancient and contemporary Maya, understood health holistically, as a collection of bodily, social, environmental, and religious factors, a fluid state in constant flux. For the Maya illness arises from bodily, social, environmental, or religious imbalances, and the ancient healing tradition of the Maya sweatbath, in practice for over 3000 years, uses the body’s nature within and the nature around to heal and treat the physical and spiritual. Healing occurs through the body’s natural response when exposed to heat; the body and soul are stoked with fire combined with water, steaming the bathers’ bodies with hot vapors and herbal remedies, purifying the body and soul and restoring equilibrium. The sweatbath’s intense heat makes the heart work, the seat of the tripartite soul, intensely pumping blood throughout the body, releasing toxins, killing germs, and expelling them in sweat through the skin’s pores. In addition to the physical and spiritual aspects, health and well-being are conceived of as a responsibility of the community, emphasizing the role of social support provided by family, friends, and one’s community throughout the entire healing process.

*Landscape Around*

Landscape reflects a society’s values and modern healthcare landscapes reflect our current values about health: physical, specialization over the whole, and economics over health. The
modern healthcare landscape, driven by business economics, is generally a mass of buildings, internally disoriented and confusing, isolated from the exterior, surrounded by a sea of parking lots, with the landscape, if any, in the distance. This landscape does not reflect well-being or healing. Hygienically, most hospitals struggle to contain the proliferation of illnesses, diseases, and “superbugs,” and spiritually, most hospitals are dark, drab, disorienting, congested with machines, and lack the familiar. In its focus on treating the physical body, hospitals fail to realize the role a place’s physicality has on healing; poor organization of space, little to no meaningful places, bad lighting, a lack of connectivity to the outside, and poor air quality, among many other non-physical factors impact healing. Hospital designs focus inward on functional components and rarely beyond the hospital’s walls at the landscape, which creates not only a more pleasant setting for healing and the hospital staff, a place reflective of health and healing, but also connects one to the nature and world around them. Modern healthcare landscapes do not integrate nature into its settings nor intimate places of healing.

While a true comparison cannot be made between the sweatbath and modern healthcare setting, a fundamental difference is the sweatbath structure and landscape are integrated; together they strengthen the physical and symbolic ritual of healing and purification, mutually reinforcing its meaning rather than working in opposition or isolation. While the sweatbath is dark inside, its darkness has meaning and significance, and like its architectural features they not only serve a functional purpose, they convey symbolic meaning; the four-sided and four-cornered structure with a sacred firebox center replicates the cosmos and connects the sweatbath not only to its unique place in the world but to other cosmological iterations abundant in Maya culture. The bathers understand its significance, evoking specific comportment and a reverence for such sacred spaces. Furthermore, the structure relates to the ritual and features such as the doorway, firebox, and womblike ambiance, relate to one’s own body, and prompt the bathers’ gestures and postures, reinforcing the ritual’s purpose. The sweatbath’s landscape is physical and symbolic, reflecting the Maya conception of health as not dependent solely on the physical but inclusive of the spiritual, social, and environment. The three landscape components of earth, water, and sky, deeply embedded with symbolic meaning, make the landscape legible in a more profound and meaningful ways to the sweatbath ritual. Earth, water, and sky are tightly woven together as transformative forces, dynamically transforming and being transformed by each other, exemplifying the sweatbath’s role in creation and the natural cycles of life. The healing and purifying process is reflected in the landscape’s transformations, utilizing the power of the surrounding nature to illustrate man’s own healing and rebirth.

Meaningfulness and Significance

Projecting outwards into another culture, time, and place is revelatory; it arouses an awareness of the status quo and juxtaposes options and perspectives. The Maya sweatbath provides a fresh way for conceiving of health, healing, and the landscape. As previously described the sweatbath uses the power of the nature within and around the body to create a dynamic place of healing, however, perhaps the most valuable discovery about the sweatbath, juxtaposed to the modern healthcare setting, is not the technological differences, aesthetics, or religious beliefs, but the Maya’s meaningfulness and intentionality derived from ritual and suffused in the sweatbath’s conception, structure, landscape, and ritual. The sweatbath healing ritual references and has a connectedness to the larger landscape and other similar natural processes occurring around

\[226\] Anecdotally, in August 2012 the National Institutes of Health had a “superbug” that killed in total six people, infecting eighteen patients in the hospital for other treatments. They through cleaned the hospital even ripping out the plumbing, but could not contain its spread. It was discovered that it was a rare strand of pneumonia carried by a patient, that was resistance to even the toughest kind of antibiotics. On average in the US nearly 100,000 lives are claimed annually by infections caught while people are in hospitals.
it, which dynamically relate to the human body and its life cycles.

As part of nature and connected to it, humans undergo similar cyclical and transformative processes, core to the sweatbath ritual, and similar to what was noted earlier in this chapter by Van Gennep, “man’s life resembles nature, from which neither the individual nor the society stands independent. The universe itself is governed by a periodicity which has repercussions on human life, with stages and transitions, progression, and periods of relative inactivity.” The surrounding world was more than physical; the Maya perceived the landscape as deities, axis mundus, ancestors, and supernatural forces, which enabled them to conjure up extraordinary landscapes out of the ordinary, and simultaneously fortify their connection with it and respect for it. The natural processes seen and observed by man are tangible and relate to man’s seasons and life cycles in everyday and ritual life. The Maya celebrated man’s significant passages through the life cycles and stages as rites of passage, important ritual ceremonies requiring the sweatbath’s purification. Rites of passage were connected to and coincided with nature’s cycles, for example, the celestial bodies’ movements and the agricultural cycle of growing corn, symbolic of death and rebirth, further enhancing and grounding the significance and potency of the present ritual being performed. These rituals aroused an awareness of the surrounding environment and the natural cycles transpiring around man, that today are all too often ignored, yet still impact our lives, and demonstrate that death and change are not an endings, but continuations and new beginnings.

Ritual establishes and strengthens connections in a community, and for the Maya an individual’s health is a concern of the entire community, thus healing is essential to ensure everyone’s well-being. Health and healing is communal; it is meaningful to the individual, community, and the functioning of the cosmos. Through the body’s physical presence and participation, the sweatbath ritual tempers one to place and time, the physical with the spiritual, social with the environmental, man with gods and nature, and the present with the past and future. The sweatbath ritual connects man to his own body, the built environment, the landscape, and the cosmos. Ritual transforms the mundane into the sacred. It gives the object and gesture meaning and significance, making the object and gesture symbolic. Thus, the outcome and healing occurring within the sweatbath is not merely physical, but a spiritual healing and transformation, mutually reinforced by the place of healing’s symbolically layered landscape.

Like humans, no building exists in isolation, but pertains to a landscape, a time and place, each with its own cultural sediment. Each sweatbath, with its own unique context, is situated within a dynamically changing landscape that expresses nature’s cycles and changes, the physical and symbolic world. These landscapes are meaningful and physically and symbolically aid in the healing process. All modern healthcare facilities have landscapes dynamically transforming around them, which could be integrated into the healthcare setting and provide more intimate contact with nature, its cycles, and changes, and thereby enhance the physical and spiritual healing process. Many healthcare facilities miss these critical opportunities; underutilized interior and exterior spaces and rooftops, where nature can be integrated into the setting and connect the healthcare facility to its particular place and the larger natural world, are not designed for and when designed for, they include amenities that while functional, lack meaning and significance. These spaces can be more profound, designed with meaning and significance, provide observations and views to the surrounding context, landscape, and of the daytime and nighttime sky, and integrate the cyclical aspects of nature that in times of need and despair, take on a symbolic role. Landscapes become charged by the presence of significant objects or structures and the events and celebration that transpire among them. Attachments are created by participation in events, evoking a collective spirituality, which arouses the individual human spirit. Exposing patients,
family and friends, and medical staff to such phenomena, places, and experiences, rather than removing and isolating them, makes the healing process legible, tangible, and facilitates it by enabling one to understand it in terms of their own nature, thus making healing meaningful in more than the physical dimension. Events and rituals performed and celebrated bring people together, creating a sense of community and concern for one other, extending health and healing into the social realm and strengthening community bonds.

Just as the sweatbath is not alone but situated in a landscape, individuals are not isolated but surrounded by people, a community, and their environment. One’s surroundings, their community and nature, are reflected in the individual and part of the individual, and should not be removed and distanced from the healing process, but embraced as essential components of the self and healing. Continuing to distance ourselves from these processes and vital forces of health, in exchange for purely physical and empirical explanations, will continue to create a flat and expressionless world and further sever the dynamic connections we have innately with our environment. Life’s processes and healing are in constant flux and transformation, and liminality, as was suffused in the sweatbath structure and landscape, expresses the healing process as one reacquires equilibrium and wholeness of being, and is reflected in the surrounding landscape.
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Figure Citations

Introduction
Figure 0.01 Map of Mesoamerica and regions
Map created by author. June 2013.

Figure 0.02 Map of the Maya area, cities, and geographical zones
Map created by author. June 2013.

Figure 0.03 Aerial photograph of Yaxchilán and region
[public domain]

Figure 0.04 Aerial photograph of Yaxchilán/Usumacinta River
[public domain]
Map created by author with Google Maps. February 2012. Images follow Google’s guidelines for citations permitting use.

Figure 0.05 Aerial photograph of Yaxchilán
[public domain]

Chapter 1
Figure 1.01 Image of Aztec sweatbath and rituals, Codex Magliabechiano
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Figure 1.02 Image of Aztec sweatbath, men bathing, Florentine Codex
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Figure 1.03 Image of Aztec sweatbath, men bathing, Florentine Codex
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Figure 1.04 Image of Aztec sweatbath, woman (midwife) bathing, Florentine Codex
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Figure 1.06 Image of Mixtec sweatbath, priest praying for birth, Codex Zouche-Nuttall
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Figure 1.07 Image of Mixtec sweatbath, assassination, Codex Zouche-Nuttall
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Figure 1.08 Image of Aztec sweatbath, man bathing inside, Codex Vaticanus 3773
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Figure 1.09 Image of Aztec sweatbath, man bathing inside, Codex Borgia
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Figure 1.10. Image of Aztec sweatbath, flowing water, Codex Mendoza
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Figure 1.11. Image of animated Aztec sweatbath, Codex Aubin
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Codex Aubin: Historia de la nación Mexicana, p 45. 1576. The British Museum.

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<td>Chichen Itza: Caracol (3C15)</td>
<td>Terminal Classic</td>
<td>ceremonial</td>
<td>yes</td>
<td>no</td>
<td>none</td>
<td>symmetrical</td>
<td>yes</td>
<td>columns 5 opening</td>
<td>n/a; prob square</td>
</tr>
<tr>
<td>Comalcalco Temple IV</td>
<td>Late Classic</td>
<td>symbolic</td>
<td>yes: no firebox</td>
<td>yes</td>
<td>tall</td>
<td>symmetrical</td>
<td>no</td>
<td>three openings</td>
<td>tall</td>
</tr>
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<td>Copan</td>
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<td>yes</td>
<td>yes</td>
<td>short</td>
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<td>yes</td>
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<td>yes</td>
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<td>symmetrical</td>
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<tr>
<td>Ek Balam</td>
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<td>no: circular</td>
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<td>no</td>
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<td>Palenque: Palace</td>
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<td>residential</td>
<td>no: linear rooms</td>
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<td>no/larger</td>
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<td>no</td>
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</tr>
<tr>
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<td>Late Classic</td>
<td>residential</td>
<td>yes</td>
<td>no/big</td>
<td>none</td>
<td>symmetrical</td>
<td>yes</td>
<td>one opening</td>
<td>short</td>
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<td>Late Classic</td>
<td>symbolic</td>
<td>yes</td>
<td>yes</td>
<td>tall-25 meters</td>
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<td>tall</td>
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<td>symbolic</td>
<td>yes</td>
<td>yes</td>
<td>tall</td>
<td>symmetrical</td>
<td>no</td>
<td>three openings</td>
<td>tall</td>
</tr>
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<td>Late Classic</td>
<td>residential</td>
<td>yes</td>
<td>yes</td>
<td>short</td>
<td>symmetrical</td>
<td>yes</td>
<td>five openings</td>
<td>short</td>
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<td>yes</td>
<td>short</td>
<td>symmetrical</td>
<td>yes</td>
<td>three openings</td>
<td>short</td>
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<td>Early Classic</td>
<td>ceremonial</td>
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<td>no/big</td>
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<td>yes</td>
<td>three openings</td>
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<td>five openings</td>
<td>short</td>
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<td>assymetrical</td>
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<td>one opening</td>
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<td>Postclassic</td>
<td>residential</td>
<td>yes</td>
<td>yes</td>
<td>short</td>
<td>symmetrical</td>
<td>no</td>
<td>one opening</td>
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<td>Postclassic</td>
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<td>one opening</td>
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<td>none</td>
<td>symmetrical</td>
<td>no</td>
<td>one opening</td>
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<td>Early Classic</td>
<td>residential</td>
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<td>yes</td>
<td>short</td>
<td>symmetrical</td>
<td>yes</td>
<td>one opening</td>
<td>short</td>
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<td>one opening</td>
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<td>yes: two chambers</td>
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<td>one opening</td>
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## SWEATBATH FEATURES

<table>
<thead>
<tr>
<th>SITE</th>
<th>DETAILS OF LOCATION</th>
<th>TOPOGRAPHY</th>
<th>RELATION TO CHANGE</th>
<th>WATER FEATURE</th>
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</thead>
<tbody>
<tr>
<td>Chichen Itza: cenote</td>
<td>on side of cenote</td>
<td>yes</td>
<td>top of an incline - drop off</td>
<td>yes: cenote</td>
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<td>Chichen Itza: 3E3</td>
<td>temple of 1000 warriors</td>
<td>no</td>
<td>n/a</td>
<td>no</td>
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<tr>
<td>Chichen Itza: Caracol (3C15)</td>
<td>near observatory</td>
<td>no</td>
<td>n/a</td>
<td>no</td>
</tr>
<tr>
<td>Comalcalco Temple IV</td>
<td>near acropolis and palace</td>
<td>no</td>
<td>n/a</td>
<td>no</td>
</tr>
<tr>
<td>Comalcalco Temple V</td>
<td>near acropolis and palace</td>
<td>no</td>
<td>n/a</td>
<td>no</td>
</tr>
<tr>
<td>Copan</td>
<td>off of main plaza space near dance platform</td>
<td>no</td>
<td>n/a</td>
<td>no</td>
</tr>
<tr>
<td>Edzna</td>
<td>directly across from Temple of Five Stories</td>
<td>no</td>
<td>n/a</td>
<td>no</td>
</tr>
<tr>
<td>Ek Balam</td>
<td>centered in middle of main plaza</td>
<td>no</td>
<td>n/a</td>
<td>no</td>
</tr>
<tr>
<td>Palenque: Palace</td>
<td>inside main palace, near tower</td>
<td>no</td>
<td>n/a</td>
<td>yes: Otolum River</td>
</tr>
<tr>
<td>Palenque: Queen’s Bath</td>
<td>near waterfall</td>
<td>yes</td>
<td>bottom of an incline-terracing</td>
<td>yes: Otolum River</td>
</tr>
<tr>
<td>Palenque: Temple of the Cross</td>
<td>in triad group, north side</td>
<td>yes</td>
<td>terracing slope</td>
<td>yes: Otolum River</td>
</tr>
<tr>
<td>Palenque: Temple of the Foliated Cross</td>
<td>in triad group, east side</td>
<td>yes</td>
<td>bottom of an incline-terracing</td>
<td>yes: Otolum River</td>
</tr>
<tr>
<td>Palenque: Temple of the Sun</td>
<td>in triad group, west side</td>
<td>yes</td>
<td>top of incline terrace slope</td>
<td>yes: Otolum River</td>
</tr>
<tr>
<td>Piedras Negras: J-17</td>
<td>palace outside edge</td>
<td>yes</td>
<td>top of an incline</td>
<td>no</td>
</tr>
<tr>
<td>Piedras Negras: N-1</td>
<td>side of large plaza</td>
<td>yes</td>
<td>top of incline terrace slope</td>
<td>yes: Usumacinta River</td>
</tr>
<tr>
<td>Piedras Negras: P-7</td>
<td>in corner of large plaza area</td>
<td>yes</td>
<td>bottom of an incline</td>
<td>no</td>
</tr>
<tr>
<td>Piedras Negras: R-13</td>
<td>near ball court, in oldest ceremonial group</td>
<td>yes</td>
<td>top of an incline</td>
<td>no</td>
</tr>
<tr>
<td>Piedras Negras: S-19</td>
<td>in linear line of residential buildings</td>
<td>yes</td>
<td>bottom of an incline</td>
<td>no</td>
</tr>
<tr>
<td>Piedras Negras: S-2</td>
<td>on hillside, down from plaza area</td>
<td>yes</td>
<td>bottom of an incline</td>
<td>yes: ancient spring</td>
</tr>
<tr>
<td>Piedras Negras: S-4</td>
<td>on hillside, down from plaza area</td>
<td>yes</td>
<td>bottom of an incline</td>
<td>yes: ancient spring</td>
</tr>
<tr>
<td>Piedras Negras: O-4</td>
<td>in quad group, small area between plazas</td>
<td>yes</td>
<td>top of an incline</td>
<td>no</td>
</tr>
<tr>
<td>Quirigua</td>
<td>with other bldgs in courtyard</td>
<td>no</td>
<td>n/a</td>
<td>no</td>
</tr>
<tr>
<td>Tikal</td>
<td>just outside main ceremonial core</td>
<td>no</td>
<td>n/a</td>
<td>no</td>
</tr>
<tr>
<td>Tulum: Castillo 1</td>
<td>in elite residential</td>
<td>no</td>
<td>n/a</td>
<td>no</td>
</tr>
<tr>
<td>Tulum: Castillo 2</td>
<td>in elite residential</td>
<td>no</td>
<td>n/a</td>
<td>no</td>
</tr>
<tr>
<td>Uaxactun 1</td>
<td>in elite residential</td>
<td>no</td>
<td>n/a</td>
<td>no</td>
</tr>
<tr>
<td>Uaxactun 2</td>
<td>in elite residential</td>
<td>no</td>
<td>n/a</td>
<td>no</td>
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<tr>
<td>Uxmal</td>
<td>in platform of Governor’s Palace</td>
<td>no</td>
<td>n/a</td>
<td>no</td>
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<tr>
<td>Yaxchilan: Str 10</td>
<td>in Great Plaza plaza near Great Stairway</td>
<td>yes</td>
<td>top of incline terrace slope</td>
<td>yes: Usumacinta River</td>
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<tr>
<td>Yaxchilan: Str 17</td>
<td>in Great Plaza plaza near ball court</td>
<td>yes</td>
<td>top of incline terrace slope</td>
<td>yes: Usumacinta River</td>
</tr>
<tr>
<td>Yaxchilan: Str 48</td>
<td>in Small Acropolis, in own courtyard</td>
<td>yes</td>
<td>top of incline</td>
<td>no</td>
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Appendix A
## SWEATBATH FEATURES

<table>
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<tr>
<th>SITE</th>
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<th>ALIGNED WITH</th>
<th>SIGNIFICANT ALIGNMENT</th>
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<tr>
<td>Chichen Itza: cenote</td>
<td>southwest</td>
<td>side of cenote</td>
<td>on side of cenote</td>
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<tr>
<td>Chichen Itza: 3E3</td>
<td>northwest</td>
<td>temple of 1000 warriors</td>
<td></td>
</tr>
<tr>
<td>Chichen Itza: Caracol (3C15)</td>
<td>northwest</td>
<td>with observatory</td>
<td>aligned with caracol entrance</td>
</tr>
<tr>
<td>Comalcalco Temple IV</td>
<td>west</td>
<td>within palace near tomb of 9 people</td>
<td></td>
</tr>
<tr>
<td>Comalcalco Temple V</td>
<td>north</td>
<td>within palace near tomb of 9 people</td>
<td></td>
</tr>
<tr>
<td>Copan</td>
<td>southwest</td>
<td>on dance platform</td>
<td></td>
</tr>
<tr>
<td>Edzna</td>
<td>west side</td>
<td>with main temple</td>
<td>in alignment with main temple</td>
</tr>
<tr>
<td>Ek Balam</td>
<td>north</td>
<td>with palace</td>
<td>center of plaza</td>
</tr>
<tr>
<td>Palenque: Palace</td>
<td>north</td>
<td>within palace</td>
<td></td>
</tr>
<tr>
<td>Palenque: Queen's Bath</td>
<td>southeast</td>
<td>near waterfall</td>
<td></td>
</tr>
<tr>
<td>Palenque: Temple of the Cross</td>
<td>southwest</td>
<td>with Cross Group Temples</td>
<td>with Cross Group</td>
</tr>
<tr>
<td>Palenque: Temple of the Foliated Cross</td>
<td>northwest</td>
<td>with Cross Group Temples</td>
<td>with Cross Group</td>
</tr>
<tr>
<td>Palenque: Temple of the Sun</td>
<td>southeast</td>
<td>with Cross Group Temples</td>
<td>with Cross Group/ sun</td>
</tr>
<tr>
<td>Piedras Negras: J-17</td>
<td>southwest</td>
<td>aligns with palace/lupo</td>
<td></td>
</tr>
<tr>
<td>Piedras Negras: N-1</td>
<td>northeast</td>
<td>aligns with temple and ballcourt</td>
<td>looking at ballcourt and pyramid</td>
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<tr>
<td>Piedras Negras: P-7</td>
<td>southwest</td>
<td>perp to emple/lupo straight behind</td>
<td>facing tall pyramid</td>
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<tr>
<td>Piedras Negras: R-13</td>
<td>southwest</td>
<td>aligns to the ballcourt</td>
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</tr>
<tr>
<td>Piedras Negras: S-19</td>
<td>northwest</td>
<td>aligns with palace</td>
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<tr>
<td>Piedras Negras: S-2</td>
<td>east</td>
<td>overlooking swale and residential area</td>
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</tr>
<tr>
<td>Piedras Negras: S-4</td>
<td>almost east-southeast</td>
<td>overlooking swale and residential area</td>
<td></td>
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<tr>
<td>Piedras Negras:O-4</td>
<td>southeast</td>
<td>not clear, near temple</td>
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</tr>
<tr>
<td>Quirigua</td>
<td>north</td>
<td>within group aligns</td>
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<td>Tikal</td>
<td>southeast</td>
<td>close to temple complex heart of site</td>
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<tr>
<td>Tulum: Castillo 1</td>
<td>west</td>
<td>within palace</td>
<td></td>
</tr>
<tr>
<td>Tulum: Castillo 2</td>
<td>west</td>
<td>within palace</td>
<td></td>
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<td>Uaxcatun 1</td>
<td>south</td>
<td>within palace</td>
<td></td>
</tr>
<tr>
<td>Uaxcatun 2</td>
<td>south</td>
<td>within palace</td>
<td></td>
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<td>Uxmal</td>
<td>southeast?</td>
<td>perp venus alignment</td>
<td>Governor's Palace</td>
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<td>perp to winter solstice</td>
<td>perp to winter solstice</td>
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<tr>
<td>Yaxchilan: Str 17</td>
<td>southwest</td>
<td>perp to winter solstice</td>
<td>perp to winter solstice</td>
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<td>Yaxchilan: Str 48</td>
<td>southeast</td>
<td>stairway to main courtyard</td>
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## SWEATBATH SOURCES

<table>
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<tbody>
<tr>
<td>Chichen Itza : cenote</td>
<td>De Landa, Tozzer 1941</td>
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<td>Chichen Itza: 3E3</td>
<td>Ruppert 1952</td>
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<td>Ruppert 1952</td>
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<td>Andrews 1989</td>
</tr>
<tr>
<td>Comalcalco Temple V</td>
<td>Andrews 1989</td>
</tr>
<tr>
<td>Copan</td>
<td>Sanders 1986</td>
</tr>
<tr>
<td>Edzna</td>
<td>Andrews 1984</td>
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<td>Ek Balam</td>
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<td>Palenque: Palace</td>
<td>Robertson Greene 1985; Houston 1995; Stuart and Stuart 2008.</td>
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<tr>
<td>Palenque: Queen’s Bath</td>
<td>Houston 1995; Stuart and Stuart 2008.</td>
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<td>Palenque: Temple of the Cross</td>
<td>Houston 1995; Stuart and Stuart 2008.</td>
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<td>Houston 1995; Stuart and Stuart 2008.</td>
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<td>Palenque: Temple of the Sun</td>
<td>Houston 1995; Stuart and Stuart 2008.</td>
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<td>Quirigua</td>
<td>Morley 1935</td>
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<tr>
<td>Tikal</td>
<td>Jones 1996</td>
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<tr>
<td>Tulum: Castillo 1</td>
<td>Lothrop 1924.</td>
</tr>
<tr>
<td>Tulum: Castillo 2</td>
<td>Lothrop 1924.</td>
</tr>
<tr>
<td>Uaxcatun 1</td>
<td>Smith 1950</td>
</tr>
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<td>Smith 1950</td>
</tr>
<tr>
<td>Uxmal</td>
<td>Barrera and Herrera 1990</td>
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Appendix B
# CODEX SWEATBATH FEATURES

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<th>CODEX</th>
<th>FORM</th>
<th>MATERIAL</th>
<th>DOORWAY</th>
<th>OVEN WHERE</th>
<th>VENTS</th>
<th>NO. OF VENTS</th>
<th>WATER WHERE</th>
<th>RITUAL</th>
<th>GODDESS IMAGE</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magliabechiano, 77</td>
<td>square</td>
<td>brick on top smooth bottom</td>
<td>small square with lintel</td>
<td>yes</td>
<td>left</td>
<td>yes</td>
<td>front/pair</td>
<td>yes side and inside</td>
<td>sick men</td>
<td>yes steam radiating from structure</td>
</tr>
<tr>
<td>Florentine Codex</td>
<td>square</td>
<td>smooth surface</td>
<td>small rounded</td>
<td>yes</td>
<td>left</td>
<td>yes</td>
<td>front/pair</td>
<td>no</td>
<td>sick men bathing naked</td>
<td>no</td>
</tr>
<tr>
<td>Florentine Codex, Blus 620</td>
<td>square</td>
<td>smooth surface, brickstone on edge</td>
<td>small rounded with stone</td>
<td>yes</td>
<td>left</td>
<td>yes</td>
<td>front/pair</td>
<td>yes man on front</td>
<td>almost naked men</td>
<td>no</td>
</tr>
<tr>
<td>Tudela Codex, 42a</td>
<td>square</td>
<td>linear lines like brick or stone</td>
<td>small rounded</td>
<td>yes</td>
<td>left</td>
<td>yes</td>
<td>front/pair</td>
<td>yes out of front</td>
<td>woman bathing</td>
<td>no</td>
</tr>
<tr>
<td>Zouche Nuttall 16</td>
<td>rounded</td>
<td>smooth surface</td>
<td>small square with lintel</td>
<td>yes</td>
<td>right</td>
<td>no</td>
<td>front/pair</td>
<td>yes front and side</td>
<td>not sure</td>
<td>yes speech scrolls</td>
</tr>
<tr>
<td>Zouche-Nuttall181</td>
<td>square</td>
<td>smooth surface</td>
<td>small square with lintel</td>
<td>yes</td>
<td>left</td>
<td>no</td>
<td>cz/a</td>
<td>no</td>
<td>cz/a</td>
<td>assassination</td>
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<tr>
<td>Vaticanus, 377/3, 32</td>
<td>rectangular</td>
<td>smooth with details</td>
<td>small square with lintel</td>
<td>yes</td>
<td>left</td>
<td>no</td>
<td>cz/a</td>
<td>yes side and top</td>
<td>man bathing</td>
<td>no</td>
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<tr>
<td>Borgia, 13</td>
<td>square</td>
<td>smooth with details on roof</td>
<td>small square with lintel</td>
<td>yes</td>
<td>cz/a</td>
<td>yes</td>
<td>maybe 3</td>
<td>yes side and bottom</td>
<td>man bathing</td>
<td>no</td>
</tr>
<tr>
<td>Aubin, 45</td>
<td>rectangular</td>
<td>not sure</td>
<td>small rounded</td>
<td>yes</td>
<td>left</td>
<td>yes</td>
<td>front/pair</td>
<td>yes front doorway</td>
<td>does not show</td>
<td>no</td>
</tr>
<tr>
<td>Mendoza</td>
<td>square</td>
<td>smooth surface</td>
<td>small square with lintel</td>
<td>yes</td>
<td>left</td>
<td>yes</td>
<td>front/pair</td>
<td>yes front doorway</td>
<td>does not show</td>
<td>no</td>
</tr>
</tbody>
</table>