
Review Article

Maya Cultural Landscapes and the Subterranean: Assessing a Century of Chultun Research

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Abstract: The function of chultuns, man-made subterranean chambers, in the southern Maya lowlands has been debated for over a century, with food storage being the most widely accepted proposal. Experimental archaeology shows, however, that none of the major Maya subsistence crops can be stored in chultuns because of their high humidity. Maya archaeology is currently at an impasse, espousing a storage function that is refuted by the data. Cave archaeology, with its intimate knowledge of subterranean space, has a decidedly different view. Ethnohistorical sources and ethnography document the fact that holes, even those dug for mining, are seen by the Maya as being caves, so one should expect chultuns to have had a religious function. Furthermore, in actual practice, there is considerable overlap between chultuns and caves, with a number of chultuns being identified as natural caves exhibiting an artificial entrance carved into them. Additionally, a number of chultuns are large enough that they could be classified as man-made caves. Religious functions have been repeatedly overlooked because of archaeologists' insistence on a utilitarian function and further exacerbated by ignorance of Maya religion and ritual. It is shown that many chultuns have cosmological alignments, being placed along center lines or centered under structures or plazas. In proposing that chultuns functioned as sites of household ritual, considerable evidence is mustered to support an explanation that is more in accord with a realistic anthropological view of the Maya. The implications for sacred landscapes are profound in that thousands of sacred landmarks would be added to every site.

Keywords: Cave, Chultun, Maya, Religion, Ritual, Sacred Landscape

1. Introduction

The function of chultuns, man-made subterranean chambers, in the southern Maya lowlands has been debated since the early years of the twentieth century [1] and by mid-century a host of functions had been discussed [2]. Although few cogent arguments had been made to support or reject most options, the field harbored a conviction from the beginning that the function must be related to food storage. Systematic investigations of chultuns were undertaken in the 1960s and 1970s by Dennis Puleston [3, 4]; also see [5], and most of the solid data rests on these works. Using an experimental approach, Puleston excavated his own chultun and filled it with water to demonstrate that without plastered walls and floors, they could not have served as cisterns. Puleston then

placed a number of different food items in the chultun but the 100% humidity caused the food stuffs to rot within weeks. The only item that survived was ramon nut which provided the basis of his theory that the Maya subsisted on ramon. Since then, stable isotope analysis has shown that the Maya were not eating substantial amounts of ramon [6]. The field is currently left in the uncomfortable position of espousing the storage function while at the same time recognizing that well accepted data refute it. This reflects the fact that the field has hit a dead end but is unwilling to consider alternative explanations.

Maya archaeology's dilemma is partially due to the fact that the Maya are no longer using chultuns so no ethnographic analogy exists. Some have criticized the use of ethnographic analogy on the grounds that it assumes that which one is seeking to prove [7]. This is simplistic in several respects.

First, an ethnographic analogy has to muster supporting arguments like any other hypothesis, but with the advantage at least of being related to the culture in question. Second, the alternative to ethnographic analogy, logico-deductive hypotheses, are themselves ethnographic analogies but with the disadvantage that they are drawn inexplicitly from the archaeologist's own culture. This is clearly illustrated in the debate on chultuns. More processually oriented surface archaeologists, treat chultuns as holes in the ground whose function must be related to holes with which they are familiar. Not surprisingly, such Western functions as trash pits and outhouses have been seriously entertained. Furthermore, none of the uses questioned processualist thinking that the function must be utilitarian.

As the title implies, our theoretical approach to the investigation of chultuns is explicitly grounded in cave archaeology. More than a half century ago, J. Eric Thompson [8] noted that "Most caves in Central America are too damp to be suitable for long residence" (p. 129). In freeing itself from the notion of habitation accepted by most of Maya studies, cave archaeology has proceeded to revolutionize the field's understanding of the subterranean. Not surprisingly, most cave archaeologists view Mayanists' obsession with the chultun storage hypothesis as being akin to the earlier fixation on cave habitation based on a lack of familiarity with the subterranean.

Since the early 1990s, cave archaeology has employed a landscape approach. One of the fundamental principles of Maya cave archaeology is its use of emic categories when considering caves [9]. This substantially changes the perspective on chultuns from that employed up until now. Rather than holes in the ground, cave archaeologists see chultuns as holes in the sacred, animate *Earth*, a decidedly loaded concept in Maya thought. This makes them a *ch'een* or cave. Ruben Reina [10] describes a clay mine that has a cross, used to denote sacred landmarks, set at the entrance and candles and copal are burned in front of it. This relationship

with mines appears to be pan-Mesoamerican. Sahagún [11] tell us that *tepetate* mines are called "sand caves" and are described as "a place of magic, a supernatural place" (p. 276). Brady [12] shows that in the Maya area, *sascab* mines, as with caves, are places where supernatural objects like saints' images appear. Ethnographer Dean Arnold [13] makes this explicit in referring to *sascaberas* as "man-made caves." Cave archaeology has a theoretical bias toward ritual explanations because it acknowledges the fact that one cannot dig a hole in the *Earth* without it becoming a sacred cave. To bring this point home to archaeologists, Ann Scott [14] recorded a Kaqchikel Maya cave ritual at Tikal that was conducted at the entrance to an archaeologist's tunnel in one of the mounds. Outside of cave archaeology there appears to be little consideration of the fact that chultuns, by virtue of penetrating the *Earth*, must have had meaning.

2. Natural Caves, Man-Made Caves and Chultuns

Cave archaeology sees chultuns as one of a number of morphologically similar subterranean features. Since they are artificial, chultuns are most closely related to man-made caves documented in the highlands of Guatemala [15, 16]. The documentation of man-made caves did not immediately give rise to the reevaluation of chultuns because of the large size of the former. Rather, the discovery that residential structures at Dos Pilas were deliberately located over very small natural caves [9] completed the equation between the natural and the artificial regardless of size [17, 18]. In some cases there were additional similarities. The layout of Chultun 4F-3 at Tikal replicated the spatial layout observed at Dos Pilas. The entrance to the chultun was placed at the back of the structure on its center line [19]. The entrance was angled so that part of the chultun was under the house.

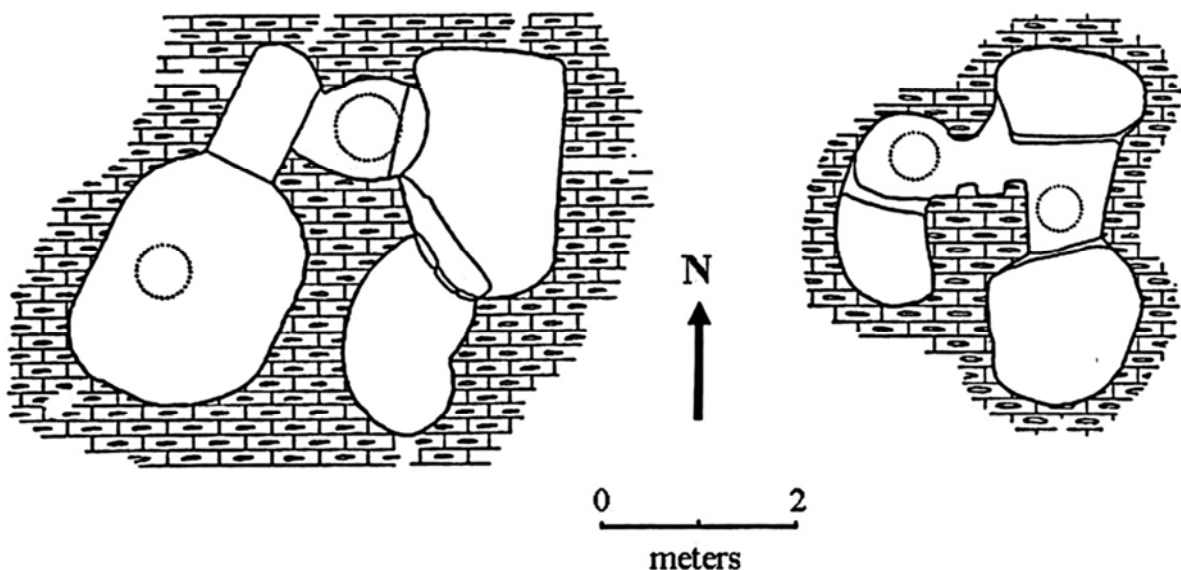


Figure 1. Both Chultuns A1 and A2 (left) and Chultuns A3 and A4 (right) at Uaxactun connect with each other through subterranean passes and each complex consists of at least four chambers and two entrances (modified from [2]).

It should be noted that Puleston's emphasis on the shoe-shaped chultun as the standard form has tended to obscure formal similarities between caves and chultuns. Early reporting took a very different perspective. At Uaxactun, Smith [2] states, "The fifteen chultuns examined varied greatly in shape ..." (p. 84). Calderón and Hermes [20] also illustrate the formal variability that they encountered in chultuns around Lake Yaxha. Smith [2] notes further that "it is not uncommon for two or more chultuns to be joined by an underground passage" (p. 84). Chultuns A1 and A2 as well as A3 and A4 connect and each complex consists of at least four chambers and two entrances [2] [Figure 1]. Calderón and Hermes [20] note that all of their protoclassic chultuns are multi-chambered, including a 12-chamber chultun that was found in the central core architecture of the site of Topoxté [21]. If small size is one of the implicitly accepted criteria separating chultuns from man-made caves, this example blurs the size distinction.

Grant Aylesworth [22] calls attention to the fact that ignoring morphological variation in chultuns may result in overlooking functional variability. In particular, stereotyping chultun form focused attention away from multi-chambered examples that are clearly more cave-like. Additionally, the more complex forms are difficult to reconcile with a storage function. At the same time, it should be pointed out that a ritual explanation of chultun function is far less impacted by formal variability than is a utilitarian one.

As cave archaeology began to examine chultuns, it immediately became clear that caves and chultuns were not nearly as distinct as the separate names imply. In several cases, archaeologists recognized features as natural caves but, because they sported artificial entrances, they were classified as chultuns. At Nakum, Alfred Tozzer [1] reported that Chultun 3 was actually a natural cave that had a chultun style entrance carved into the central chamber and that the feature had been artificially enlarged. Two additional small chambers were noted on either side of the central chamber. The total length of all three chambers was only about 7 m and nothing of importance was recovered from Chultun 3.

At Uaxactun, the artificial entrance to Chultun 3 provided access to a natural cave 7 m long, 6 m wide and over 2 m high. Small passages were noted in the northern, southern, and western walls. The passage in the southern wall led to another small cave chamber. The feature appears to have had a long utilization as Smith [23] found "all the types of pottery previously at Uaxactun were present" (p. 326). Ricketson and Ricketson [24] also note that: during the house-mound survey a series of ten chultun-like openings, obviously artificial, was found extending in a curve through squares 7000 and 8000 NW (Figure 2). These openings were just large enough to admit a small man. Two not choked with debris were explored: one, whose roof had fallen in, measured 3 m. deep by 1.20 m. square and connected with a natural limestone cave, roof intact; the other, closed by a cut stone placed over the orifice, also led to a natural cave, narrower and deeper than the first. The caves were apparently connected by small water-worn

passages in the rock; stalactites hung from the walls but no sherds or human remains were found. (p. 26).

Spider Cave at Maax Na presents a slightly different case in that the feature was originally reported as a completely natural cave by Eleanor King and Leslie Shaw [25]. Although small, 8 m long by 7.5 m wide, Spider Cave's steeply sloping floor and low ceiling make its interior spatial configuration decidedly different than a chultun. During the investigation, a blocked entrance was discovered that opens near the door of a shrine structure at the top of the hill. The entrance had clearly been enlarged from some smaller opening in the bedrock. The modification was extensive enough that there was no way of guessing the size of the original opening [26] [Figure 2]. Spider Cave is interesting in that the artificial entrance presents yet another instance of a morphological characteristic used to define chultuns being shared with other subterranean features.



Figure 2. A highly modified circular entrance was carved into the bedrock to make the upper entrance of Spider Cave at Maax Na, Belize (photograph courtesy of Eleanor King).

3. Chultuns and Utilitarian Functions: A Critique

The discussions of chultun function began in the early decades of the twentieth century so it predates the modern processualist vs. post-processualist debate. Nevertheless, the emphasis on utilitarian functions continued largely unchanged from the beginning to the end of the twentieth century in very

much a processualist vein. Puleston, to be fair, expressed interest in exploring possible religious functions, but the archaeology of religion was so underdeveloped at the time that the venture had no chance for success.

The weakness in archaeological reasoning of the time is nowhere better exemplified than in Puleston's [3, 4] deduction that chultun function must be secular or utilitarian because most of his chultuns were located in rural areas and not in centers. The thinking that ritual is confined to centers is curious in view of ethnographic documentation of planting ceremonies and household ritual in rural areas [27, 28]. However, Cagnato [29] makes precisely the same point in saying:

While chultunes could be viewed as artificial caves and, therefore, as liminal spaces between the real world and the underworld [30], I would argue that, based on their ubiquity on the landscape and proximity to residential areas [31, 3], these were not solely ritual spaces ... (p. 89).

In the face of such statements of Western secular thinking, ethnography is particularly helpful. Lacandon Maya domestic compounds contain a "god house" [32] and Gann [33] mentions the construction of two huts for a *cha chac* ceremony so there are clear analogies for rural, household, religious structures. There are also accounts of household altars and household ritual proclaiming that ritual is everywhere [34]. These analogies are not assuming that which one seeks to prove; they are simply a remedy for archaeological ignorance.

This lack of familiarity with Maya religion and of ethnographic sources is evident throughout the literature. Dahlin and Litzinger [35] propose that chultuns were used for the fermentation of alcoholic beverages as a cottage industry. The problem is not with fermentation being carried out in chultuns but rather with the social context of the activity as proposed by the authors. No evidence for such a cottage industry is produced but the authors simply refer to a "pattern of market place drinking" which may well have developed during the colonial period. More attention needs to be directed to the appropriateness of the authors' model. In discussing Mesoamerican patterns of religion, Charles Wisdom [36] states that, "To this list may be added intoxicating liquors, which are generally considered indispensable in performing ceremonies and curing." Modern Lacandon Maya brew *balché* for personal use in a wooden boat or basin kept in the "god house" which was proposed as being analogous to a chultun. This reflects the fact that the drink is closely associated with ritual. Tozzer [37] states that beehives are kept in the "god house" "and the honey is never used for secular purposes." Furthermore, Villa Rojas [38] and Barrera Vasquez [39] state that *balché* is made with *zuhuy ha* so that this is a sacred drink [40] surrounded by ritual [41]. Shorn of its proposed commercial production aspect, the Dahlin and Litzinger hypothesis discusses an activity completely consistent with the function of chultuns as earth shrines.

This failure to consider-ritual practices is even evident in a recent discussion of chultuns that acknowledges the possibility of a religious function. Cagnato [29] provides interesting data on paleobotanical material recovered through

flotation of soils excavated from chultuns at El Peru and La Corona. She notes that many of the species are not food plants, which should raise a red flag about a storage function. Interestingly, some of the plant species were also reported by Morehart [42, 43] in his paleobotanical study of Belizean caves, which correspondingly should have implicated their use in ritual. Even the presence of maize is hardly evidence of utilitarian storage as kernels and cobs are reported from many ritual caves [12, 44, 45, 46, 47]. Because of its importance in subsistence, it is hardly surprising that maize is recognized and celebrated in ritual. Furthermore, experimental archaeology documents that maize does not store well in chultuns. What is never made clear in Cagnato's work is how carbonized remains reflect evidence of food storage. While this is her conclusion, it fails to deal with the fact that carbonized kernels would clearly be inedible. On the other hand, carbonized remains are quite consistent with ritual utilization where modern ritual specialists burn offerings consisting of plant and food items as part of ceremonies [14] [Figure 3].



Figure 3. Modern Kaqchikel Maya ritual specialists burn large quantities of plant and food items as offerings during ceremonies leaving nothing but carbonized remains (photograph courtesy of Ann Scott).

4. Chultuns, Sacred Geography, and Ritual Function

The discussion thus far has faulted archaeological thinking for being woefully uninformed about Maya religion and ritual. We have been particularly critical of the tendency to paint the

landscape outside of centers as a secular domain, which it surely is not. But, if centers are supposedly the domain of ritual, why has there been so little attention to chultuns within centers? We suspect that it is because the storage hypothesis is most tenuous in these settings, although Lucero [48] asserts, “Small-scale storage existed (chultuns), but it clustered at elite and royal residences and likely provided food only for household members” (p. 288). Attention will, therefore, turn to the relationship of chultuns in the built environment.

One of the more interesting relationships in this context is between chultuns and stelae. At Uaxactun, Stela 17 was set up above a chultun [Figure 4]. Smith [23] says:

A most unusual find was encountered under Stela 17. Here, under a floor and 6 inches from the base of the stela was the mouth of a chultun covered by a flat, circular stone. This chultun had two chambers, one a little to the north and below the other, directly under the stela. Nothing was found in either chamber (p. 325).

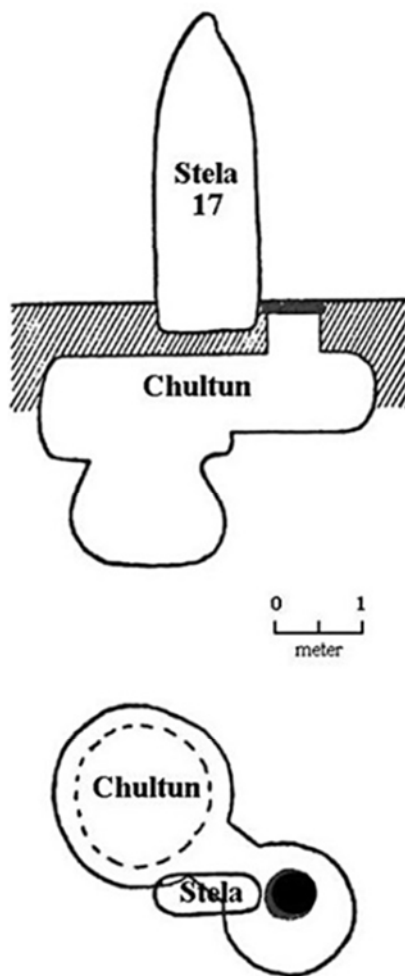


Figure 4. Plan and cross section views of the relation of Stela 17 at Uaxactun to its chultun (after [24]).

Cagnato [29], citing a personal communication from James

Fitzsimmons, notes that there are two additional stelae paired with chultuns at Zapote Bobal, which Fitzsimmons says in affect depict the ruler standing at the edge of the underworld. Cagnato [29] also recognizes these chultuns as functioning as symbolic caves. There is an analogous association of stelae with the subterranean at Copan. Stelae are set in the center of subterranean cruciform chambers. This is clearly a cosmogram invoking the four directions with the stela at the center [Figure 5]. That the cruciform chambers are supposed to represent caves is made explicit with Stela I, Stela M, and Stela 1 where speleothems (cave formations) were cached among the offerings in the chambers [49]. Thus, the subterranean chambers at Copan clearly parallel the chultuns at Uaxactun and Zapote Bobal, strongly suggesting that both represent caves and, therefore, sacred space. If one considers stela caches as another expression of the relationship of stelae with the subterranean, the pattern becomes pervasive.

Because of the highly built nature of Topoxte Island, all 14 chultuns should be considered as being in the site core [20]. Several of the features are of special interest. Calderón and Hermes note that the seven chultuns dating to the protoclassic are all multi chambered and Chultuns 6B-1 and 7B-1, associated with Structure A on the north of the main plaza, are especially complex. Rather than an actual chultun, 7B-1 is a subterranean feature with a dozen interconnected chambers. The authors dismiss the possibility of storage for either of the above features and suggest that 7B-1 had a ritual function, possibly serving as a cave [20].

Returning to the issue of sacred landscapes, a number of chultuns are noted as being placed on the centerline or in the center of architecture. Centerlines have long been recognized as being important archaeologically as caches and tombs are often located in relation to the center. Freidel, Schele, and Parker [50] discuss at length what they call “centering” as an important concern in Maya cosmology. Interestingly, although the importance of centerlines has been long recognized, they were never even raised in Puleston’s consideration of evidence for a ritual function. Since centering occurs at all levels, the household level will be examined first before moving on to larger public architecture.

A dedicatory cache associated with a farmstead at Chan Nöohol includes what Robin [51] calls a miniature chultun. This was placed behind the house and on its rear axis. On top of the capstone were four river cobbles each with distinctive colors that may have had directional symbolism. In the center was a fragment of a greenstone axe. This is very similar to Chultun 4F-3 at Tikal mentioned earlier. The entrance to the chultun was placed at the back of the structure on its center line with the entrance angled so that part of the chultun was under the house [19]. As noted, the same spatial arrangement was documented between houses and small natural caves at Dos Pilas [9].

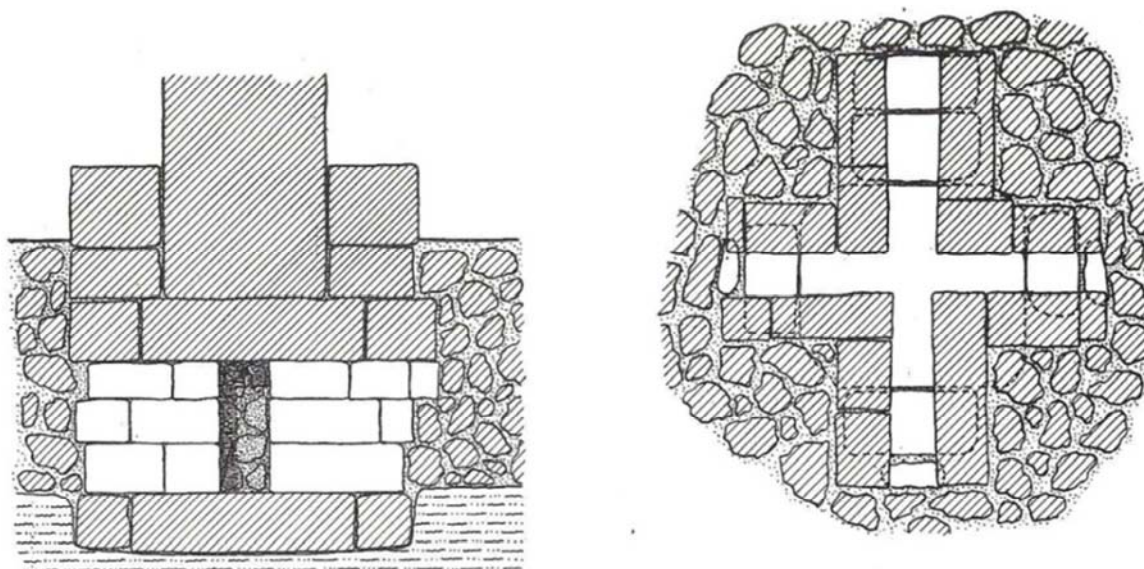


Figure 5. Plan and cross section views of Stela 1 at Copan set in its subterranean cruciform chamber (after [49]).

Juan Antonio Valdés [52] found a chultun on the centerline of Structure 6 at the foot of the central staircase in the palace sector of Tamarindito. Chultun D at Tzimin Kax was found in the center of Plazuela XIV, located about three-quarters of a mile east of the main group. The plazuela had two or three structures around it [53]. Chultun 5D-6 at Tikal was dug under the center of one of the earliest structures in the North Acropolis and dates to between 430 – 200 B. C. Chultun 5D-6 was terminated and filled as part of a major renovation of the acropolis [54]. The placement on centerlines and centering should alert the archaeologist to the fact that the function of the chultuns is at least partially symbolic and related to Maya cosmology.

The cave survey at Dos Pilas [9, 55] has demonstrated that natural caves are incorporated into settlements to validate that space with what García-Zambrano [56] calls “cosmogonic referents.” This was even more clear in the case of man-made caves because their location was the result of a deliberate decision of their makers. Thus, these features are often placed on centerlines or centered under architectural features. The caves under the Pyramid of the Sun and the Pyramid of the Plumed Serpent at Teotihuacan [57, 58, 59] are perhaps the most dramatic examples but others have been noted at La Lagunita [60], Utatlan [61, 15], Totimehuacan [62], and Acatzingo Viejo [63]. It seems clear that these constructed features functioned as natural caves in validating settlement space. As shown above, chultuns also appear to function in validating space. Brown and Garber [64] explicitly acknowledge the chultun’s role in legitimizing space at Blackman Eddy in saying:

We suggest that the chultun associated with the earliest buildings under the Str. B1 sequence may have been understood in part as a cave or portal, establishing a sacred quality for this location. Later construction phases of Str. B1 covered this chultun in what we believe was a purposeful and intentional effort to incorporate this portal and its associated underworld concepts into the larger meaning of

subsequent structures (p. 152).

5. Discussion

In reviewing the long standing debate on chultuns, their function as storage chambers was proposed early and remains the most widely accepted function even as it is recognized that nothing can be stored in them. The reason that the field has not moved on can be attributed in part to the nature of chultun deposits and not simply theoretical obstinacy, although that should not be ignored. It has been noted that most chultuns, even sealed ones, contain no artifacts. If the artifact assemblage directs ones interpretation, the lack of artifacts leaves us directionless. Here, ritual studies provide some interesting insights. Scott [14] notes that modern ritual specialists sweep an area before performing a ritual to animate and bound the space and remove paraphernalia from previous ceremonies to prevent contamination by negative forces that those objects might contain. Such cleaning has been noted in a number of archaeological cave contexts [65, 12, 66]. The lack of artifacts does not indicate a religious use but it is much more consistent with that use than is storage. It should also be noted that some chultuns that can be assigned a ritual function on other grounds, like the chultun under Stela 17 at Uaxactun, were sealed and empty. Where the function appears largely symbolic, artifacts are not required.

Most chultuns that have been investigated have lost their lids, permitting soil, artifacts, and debris to enter. The excavation of these deposits has been important for documenting burials within chultuns, but most of the material removed has nothing to do with activities associated with the primary use of these features. The recovery of highly eroded sherds [29], for instance, is proof that this material was exposed on the surface before being washed into the chultun. Additionally, most excavations have not been successful in removing the intrusive material to expose the original ground surface. As a result, most have produced little interesting data

and none have substantially moved the debate on chultun function forward. This does not have to be the case. Tozzer [1] describes a number of artifacts recovered from the eight inches above the floor of Chultun 2 at Nakum. Among the objects were a number of figurines which certainly suggest a ritual function [1]. We maintain that continuing to excavate half-filled chultuns is a waste of time without some well thought out objective and an equally well thought out methodology.

We would argue that greater effort needs to be concentrated on locating sealed chultuns where the primary functional context can be systematically investigated and that this must employ a methodology specifically designed to isolate ritual. We would insist on the latter because archaeologists are guilty of a blatant disregard for ritual contexts. This is well illustrated in the case of Chultun 3 at Uaxactun, the natural cave with an artificial entrance mentioned above. We suspect that this feature may have presented precisely the type of primary context that needs to be investigated. Smith [23] describes the ceramics as “Some of the best pottery yet found at Uaxactun” (p. 326). Interestingly, among the non-ceramic artifacts were a laurel leaf biface blade, obsidian lancets, worked shell, animal teeth, human bone, a figurine, half a red dish, a pot lid, a carved pot leg, a smooth, hard black stone, and a mano and metate [24]. Nevertheless, Smith [23] labeled it a “dump.”

The labeling of subterranean and ritual sites as “trash dumps” is not unusual [2, 67, 68]. When Brady began the Petexbatun Regional Cave Survey, the Cueva de El Duende was presented as a trash dump. It might be argued that Smith labeled the Uaxactun cave/chultun a dump because of the high density of ceramics and artifacts but it has been shown that caves often produce sizeable assemblages [69]. Because of the time period when he wrote, Smith can be forgiven for this label but over the last 30 years abundant evidence has been produced to indicate that subterranean deposits are likely to be related to ritual. This, however, appears to be precisely the problem because few archaeologists are comfortable with analyzing and interpreting ritual deposits. Labeling the deposit a trash dump resolves the dilemma by removing these features from closer scrutiny and interpretation.

There are a number of chultuns that have been investigated along the suggested lines and it is instructive to examine these. Chultun 4F-3 at Tikal was mentioned earlier because the chultun is located at the back of the structure with the entrance on its centerline and angled so that part of the chultun is under the house. Such a layout should immediately alert the archaeologist to the possibility that ritual is involved. Portions of two adult crania were found on the chultun floor but no other bones were present to suggest that this was ever a primary burial from which bones had been removed [19]. Instead it looks more like an example of ancestor veneration along the lines suggested by McAnany [70].

Another example of an artifact assemblage related to the chultun’s primary function is Chultun 5D-6 in Tikal’s North Acropolis. The chultun contained 200 lbs. of ceramic. Among the non-ceramic artifacts were 25 human bones, 400 animal

bones and teeth including bat, lizard, toad, and snake in addition to deer, dog, and cottontail. There were also 150 bird bones and 200 *Pomacea flagellata* shells. William Coe [54] suspects that the feature had an esoteric or, as he says, “subterraneanly secretive” function. These chultuns definitely point to a primary function related to ritual.

6. Conclusions

The first point that needs to be made is that there is no evidence to support the notion that chultuns were used for food storage. All the experimental evidence produced so far flatly contradicts the idea. Proponents raise the possibility of some as yet unspecified food stuff that would store like ramon. The number of chultuns in the landscape suggests that the crop stored would have been produced on a scale comparable to maize. If it was an alternative to maize, isotopic evidence says it would have to be a C4 plant. It is time to recognize that no such thing exists as any C4 plant will have the same storage problems as maize. A second line of reasoning is that the Maya either treated the bedrock or included some organic material that reduced the humidity. From our three decades of experience underground, these fanciful suggestions appear absurd and as simple covers for ignorance and/or theoretical obstinacy.

This paper has shown how the investigation of natural caves led to the documentation of man-made caves. The growing awareness of artificial caves underscores the fact that the distinction between natural and man-made, so central to Western thought, appears not to be important in Maya thinking, at least in regard to the subterranean. It then proceeds to document the existence of hybrid forms that further blur any clear morphological distinction between natural caves, man-made caves, and chultuns. The round, clearly artificial entrance so emblematic of the chultun is shared with natural caves as well. Throughout this paper, authors have been cited who have identified chultuns as functioning as caves. If chultuns are conceptually related to other subterranean features such as caves and man-made caves, then it is the storage hypothesis, not the religious function, which is grossly out of place.

We have laid out a model of sacred landscape based on Maya concepts of a sacred, animate *Earth* [71]. We note that holes in *Earth*, even for mundane purposes such as extracting building material, will come to have supernatural connotations. Chultuns, therefore, must have had meaning. Although this view is well grounded in ethnography, it has met resistance as it confronts deeply embedded archaeological ignorance and ethnocentrism that is related to more than simply the question of chultuns. Stephen Houston [72] once commented that, after working at an LDS institution, he wondered whether archaeologists were intellectually equipped to undertake a study of religion. His point is well taken. Archaeological approaches have epitomized the confluence of simplistic theory that has marginalized the study of the non-ecological [73] with ethnocentrism that represents the Maya as sharing archaeologists’ personal views of the minimal importance of

religion. As anthropologists, however, it must be recognized that the Maya are a non-Western culture that shares few of our values.

As noted in the last paragraph, cave archaeologists have employed a model of sacred landscape that has allowed them to focus on a set of important landmarks and produce a coherent reconstruction of one aspect of Maya cultural geography. The results have important implications for surface archaeology. In their review of the archaeological literature from 1995 to 2005, Michael Smith and Katharina Schreiber [74] state that, "For the Classic Maya, studies of sacred landscapes are dominated by research on caves." Very importantly, they also noted that, "In contrast to the empirically grounded cave research, other work on Classic Maya sacred landscapes is highly speculative in nature" (p. 19). Thus, cave archaeology has established and maintained a strong empirical, data driven approach to the archaeology of religion.

This approach is being extended to chultuns in proposing that they served as man-made caves. Given their small size, the features would most often have been used for private ritual. As already suggested, this clearly relates to household ritual in rural areas. We are well-aware of chultuns "ubiquity on the landscape" but we see this as precisely the important point in coming to a very different conclusion than previous researchers. For us, a Maya rural landscape with thousands of ritual features is, from an anthropological perspective, much more likely to be correct than one devoid of them. In the face of evidence of ritual features everywhere, the importance of religion would be impossible to ignore. We recognize that many archaeologists will balk at such an admission but this simply confirms the point made by Houston earlier.

Within centers, chultuns are often placed along centerlines of structures clearly indicating that the placement had religious intent. Even when chultuns do not have such an obvious placement, it is perplexing that archaeologists do not apply the old real estate adage, "location, location, location" more often to the interpretation of the space. For instance, two partially collapsed chultuns in Plaza A of La Milpa are 7 m in diameter and over 2½ m deep [75]. Each could have accommodated several dozen people. Mason sees Plaza A as the preeminent politico-religious space and interprets the chultun as a cave and its function as religious.

Attempts to investigate a religious function of chultuns have been stymied by ethnocentric thinking and ignorance of Maya religion and ritual. A number of chultuns have been reviewed that appear to have artifact assemblages related to the primary function of the features and these contexts strongly suggest a ritual function. We note that the concept of the "trash dump" has been invoked frequently to prevent subterranean material from being meaningfully interpreted. This is ironic because archaeologists seek out "trash dumps" behind palaces to interpret activities within those structures. So why is the concept of the "trash dump" invoked in subterranean contexts to end discussion? It is clear that this is an admission of ignorance more than a measured assessment of function.

Finally, to conclude, Lucero [68] observes that, "The emphasis on chultuns for understanding Maya ritual is important because present evidence indicates that some of the earliest ceremonial activities may have taken place in these underground chambers" (p. 238).

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