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Radiocarbon Dating of Teotihuacán Mapping Project TE28 Material from Cave under Pyramid of the Sun, Teotihuacán, México

Figure 1a. Western front face of Pyramid of the Sun showing open door of cave entrance. © R. Sload.

Research Year: 2006
Culture: Teotihuacán
Chronology: Terminal Pre-Classic
Location: Teotihuacán Valley, Basin of México
Site: Cave under Pyramid of the Sun, Teotihuacán

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Abstract

This report analyzes 16 radiocarbon dates obtained from charcoal samples collected in 1978 by Teotihuacán Mapping Project (TMP) Test Excavation 28 (TE28) in the cave under the Pyramid of the Sun at Teotihuacán, México. Questions relating to Teotihuacán use of the cave are explored–its earliest use, duration of use, dating of blockage construction and laying of the concrete floor, and whether there are any temporal differences between the front and rear sections of the cave. Studying the cave is important because its use was contemporaneous with the occurrence of political, social, and economic changes that defined the city until its fall 500–600 years later. It is likely that these changes had an ideational component that was linked to the Pyramid and cave.

Based upon the results of the 16 radiocarbon dates, I suggest the following. It seems as if the entirety of the cave as we see it today was in use by around the middle of the first century CE. This dating agrees well with the ceramics. The radiocarbon dates fall squarely in the Tzacualli phase, which is the earliest ceramic phase represented by TE28 ceramics. It seems as if the laying of the concrete floor in the entirety of the cave, as well as the construction of the blockages, occurred within a fairly compressed period of time, probably around the middle of the third century CE. This time frame is surprising, because it is solidly in the middle of the Early Tlamimilolpa phase, a ceramic phase that is sparsely represented in cave ceramics. In addition, access to the cave may have been stringently controlled. Data suggest that the cave was used by very limited numbers of people, acting extremely reverentially. It also appears as if the cave experienced a significant period of disuse prior to its being encased in concrete and blocked off. While 16 dates are too few to express these finding with a high degree of confidence, the dates are consistent and provide an important part of the comprehensive publication of the cave that is in progress.

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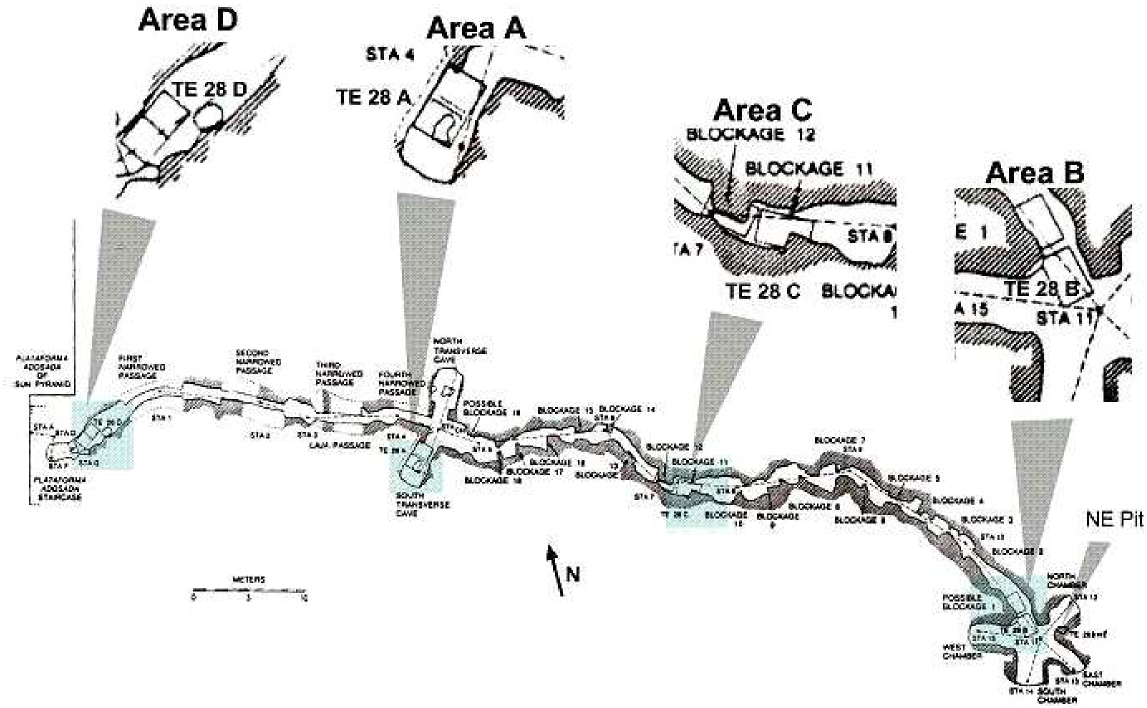

Figure 1. Cave beneath Pyramid of the Sun. After Millon 1992:386.

Introduction

This report gives the results of 16 radiocarbon dates from the cave under the Pyramid of the Sun at Teotihuacán, México. The samples were excavated in 1978 as Teotihuacán Mapping Project (TMP) Test Excavation 28 (TE28) under the direction of René Millon, and were stored at the ASU-sponsored Teotihuacán Archaeological Research Center in San Juan Teotihuacán, directed by George L. Cowgill. TE28 consisted of seven test pits in four locations inside the cave (Figure 1). The strategic placement of the test pits facilitated the design of this project, whose purpose is to answer questions relating to Teotihuacán use of the cave – its earliest use, duration of use, dating of blockage construction and laying of the concrete floor, and whether there are any temporal differences between the front and rear sections of the cave. FAMSI funding enabled the selection and dating of the samples, in connection with preparation of a full report on this extraordinarily important discovery.

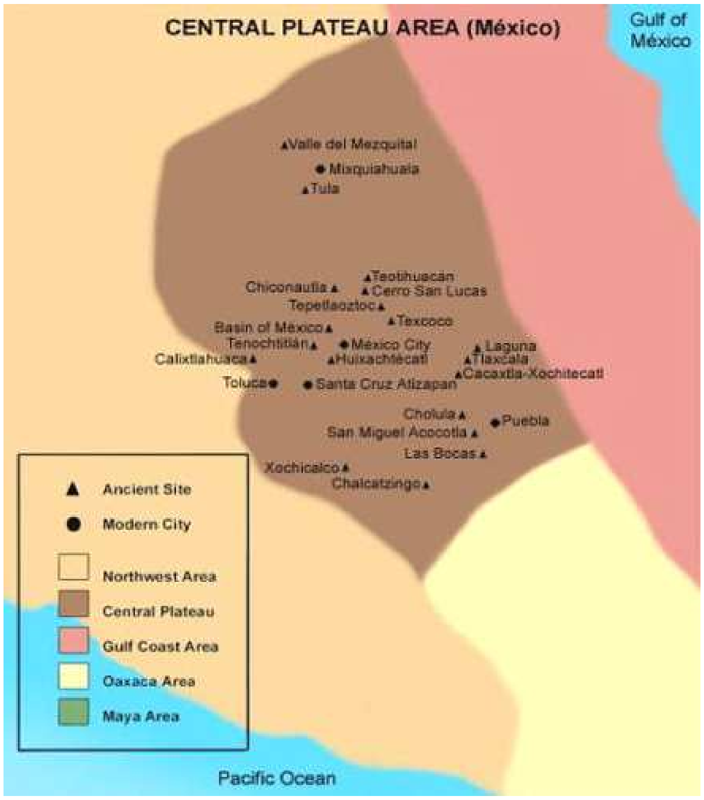

Figure 2. Regional map showing location of Teotihuacán. © FAMSI.

Background

The ancient city of Teotihuacán is located in the Teotihuacán Valley within the Basin of México in the central Mexican highlands (Figure 2). In the first or second century BCE Teotihuacán began its ascent to becoming in less than 500 years one of the largest cities in the world (Millon 1993:33). Teotihuacán's history is divided into six phases based on changes in ceramics (Figure 3, shown below). The most important of these phases for this report are Tzacualli, Miccaotli, and Tlamimilolpa, which span the period from about 1 to 350 CE (Figure 3, below). At the beginning of the Tzacualli phase the city covered roughly eight km² and had a population estimated between 20,000 to 40,000 (Cowgill 1997:133). During the Tzacualli phase population probably grew to as much as 60,000 to 80,000 and the city's area expanded to around 20 km² (Cowgill 1997:129). A century or so later Teotihuacán attained its maximum population, estimated at a middle range value of 125,000, becoming more dense but not growing much beyond the city area established during Tzacualli (Cowgill 1997:129-130; Millon 1992:344). The pattern of growth for both population and area is early and rapid (during Tzacualli), followed by slowing population growth and little change in area.

Patlachique	150 BCE – 0 CE
Tzacualli	CE 1 – 150
Miccaotli	CE 150 – 200
Tlamimilolpa	CE 200 – 350
Xolalpan	CE 350 – 550
Metepec	CE 550 – 650

Figure 3. Teotihuacán Valley ceramic chronology. (After Millon 1981:Figure 7-7; modified by Cowgill 1997:Figure 1).

Teotihuacán is well known for its two largest pyramids, the Pyramid of the Sun and the Pyramid of the Moon. In 1971, a cave was discovered under the Pyramid of the Sun (Heyden 1973, 1975). A depression at the base of the Pyramid's *adosada* platform was examined, revealing a rubble- and rock-filled pit that was the entrance to the cave (Heyden 1975:131). This entrance is on the east-west centerline of the Pyramid, and the terminus is located about 100 meters to the east, approaching the center of the Pyramid (Heyden 1975:131; Millon 1981:231).

It is intuitively and manifestly clear that the cave's *raison d'être* centered on ritual, religion, and belief (Millon 1981:232). The cave is located beneath the second largest pyramid in Mesoamerica and its entrance is in close proximity to the Street of the Dead, the ceremonial avenue of the city. It is directly related to the Pyramid via a number of spatial relationships that clearly indicate interdependencies were engineered between the two (Sload 2005). While Manzanilla attributes ritual functions to the cave, she argues that the cave was man-made, a tunnel originally created to quarry pyroclasts for surface site constructions and only later used idealogically (Manzanilla *et al.* 1994, Manzanilla *et al.* 1996, Manzanilla 2002, 1994). It is clear that the Teotihuacanos significantly modified the cave. During the course of TE28 Altschul (1978a:52, 66, 74, 94) noted modifications to the cave ceiling, including the apparent knocking off of material for use as fill for the floor. More substantial architectural alterations include (refer to Figure 1) constructing four narrow passages with laja ceilings in the front, western section of the cave (Millon 1981:231); completely or almost completely creating the four chambers at the cave's terminus (Heyden 1975:144, Millon 1981:231); artificially narrowing the cave walls to emphasize the cave's serpentine shape (Millon 1981:231; 1992:387; 1993:22); constructing 17 to 19 blockages in the back, eastern section of the cave (Millon 1981:233; 1992:387); and covering the floor of the cave with Teotihuacán concrete.[1] As Millon (1993:22) observes, "Every aspect of the modified cave manifests ritual." While it is not yet known what types of ritual specialists practiced in the cave or their purpose, given the cave's super sacred location, it is a virtual certainty that

[1] Teotihuacán concrete is the term coined by Millon (1973:27) to describe the mixture of crushed volcanic scoria (*cascajo)* and mud mortar widely used as a building material by the Teotihuacanos.

activities in the cave were, at a minimum, sanctioned by the authority in control of the Pyramid of the Sun. If not directly involved as participants, these elites were supportive.

The Pyramid of the Sun was mostly built during the Tzacualli phase (Millon *et al.* 1965), apparently contemporaneous with intensive use of the cave (Millon 1981:231). Concurrent with these activities, important changes show up in the archaeological record that defined the city until its fall 500-600 years later. For example, during the Tzacualli phase the fast growth of the city's population was achieved at least in part by resettlement to inside the city of most of the population of the Basin of México (Cowgill 1997:133). The tight political control of the Basin by Teotihuacán shown by such a feat seems to have continued for most of the city's history (Cowgill 2000:134; Millon 1988:138; Sanders *et al.* 1979:114). The 15º25′ east of astronomic north orientation that was to characterize both public and residential architecture in the city until its fall apparently originated at this time, since the Pyramid was built to this orientation (Millon 1973:52-53; 1992:344; Šprajc 2000:404-409). Recent cave studies, particularly in the Maya area, shed light on the role caves played in legitimizing elite power and constructing sacred space (Brady 1997, Brady and Colas 2005, Brady and Stone 1986, Pugh 2005, Prufer 2005, Prufer and Kindon 2005, Stone 2005, Vogt and Stuart 2005). It is hard to imagine that the political, social, and economic changes of the Tzacualli phase did not have an ideational component that was linked to the Pyramid and cave (Millon 1981:231-232).

Figure 4. Entrance to the cave. © René Millon.

The Cave

The following brief summary of the cave highlights some of its important features as a way of providing context for the analysis of the radiocarbon dates that is the subject of this report. Access to the cave is via a 6-7 m vertical drop, which means that virtually all of it is in the dark zone. Today, it is dry, but the presence of drain stones, drain covers, silt marks, and other evidence suggest that this may not have been the case in Teotihuacán times. Both Millon (1981:234) and Altschul (1978b:36) contend that water was brought into the cave from the outside, since there is no evidence of an internal source. While Manzanilla (1994:60, Manzanilla *et al.* 1996:252) also denies a spring inside the cave, she suggests a possible internal source composed of small watercourses created by vertical seepage originating in the northeast of the valley. The cave can be divided into two sections. A longer section to the east was sealed by the construction of 17-19 blockages that extended from north cave wall to south cave wall and from floor to ceiling. A shorter section begins at possible blockage 19 and extends westward to the cave entrance; there are no blockages here (see Figure 1). Compared to the eastern section, the western section is also architecturally different: the presence of four narrowed passages gives this part of the cave a more structured feel. In these passages the walls of the cave are narrowed and the ceiling lowered so that a person can walk single-file but not abreast, and with head, shoulders and waist bent but not upright. At least two construction phases, one of which is faced with Teotihuacán concrete, are present in three of the four narrowings. It is possible that different parts of the cave were used at different times as evidenced by the blockages, the fact that there are so many of them suggests that significant time may have elapsed between construction of the first and last, the different construction phases of the narrowings, and the fact that they would have been accessible from the entrance of the cave after construction of all the blockages.

At the time of a TMP surface collection of the cave in the summer of 1976, two years prior to the test excavations, the condition of the cave was significantly different than when the Teotihuacanos abandoned it. In 1971 when the cave was (re)discovered, Heyden (1975:131) notes that the upper half of all the blockages had been penetrated from the look of them “long ago.” After 1971 but before 1976, the Instituto Nacional de Antropología e Historia (INAH) performed a cave consolidation that included, among other things, construction of a metal staircase (Figure 4) to replace the “ancient, semi-destroyed stairway cut out of bedrock” (Heyden 1975:131), installation of electricity, clearing the middle of the blockages from floor to ceiling, excavation of the 4-chambered terminus, and removal of rubble. So much debris was removed “that a block and tackle was set up in the entrance; the workmen involved say that truckloads were hauled away for construction fill in various parts of the archaeological zone and that there was nothing ‘of importance’ in it” (Millon 1981:233-234).

Current understanding is that the cave was used extensively during the Tzacualli phase and was sealed by blockage construction in the second century C.E. (Millon 1993:22). This interpretation is based largely on ceramics, albeit relatively small numbers of ceramics. The TMP collected 145 sherds in 1976 from the surface of the cave, 91% phase to either Tzacualli or Miccaotli. In 1978 TE28 yielded 273 sherds during 6 weeks of excavation, of which 92% belong within these two phases. The occurrence of later material, including the two mirror backs illustrated by Heyden (1975:figure 2), in the terminus of the cave and between blockages prompted the suggestion that the blockages were breached in Teotihuacán times, probably during Late Tlamimilolpa (Millon 1993:22; Millon 1981:233).

Given the layout of the cave and the location and construction technique of the blockages, the final step in building them had to be the application of concrete to each blockage's west face. All evidence indicates that this operation was part of the same operation that covered the floor of the cave in front of each blockage with concrete. There is no break in the concrete at the point where the west face of the blockage meets the cave floor. Figure 5 shows the concrete floor sweeping uninterrupted from the floor up the west face of blockage 12. In addition, note that there is no concrete in the space occupied by the blockage, indicating that the concrete floor was not present before blockage construction. The same situation occurs at blockage 11 in the east pit of area C (Altschul 1978a:132, 151; Altschul 1978b:17).

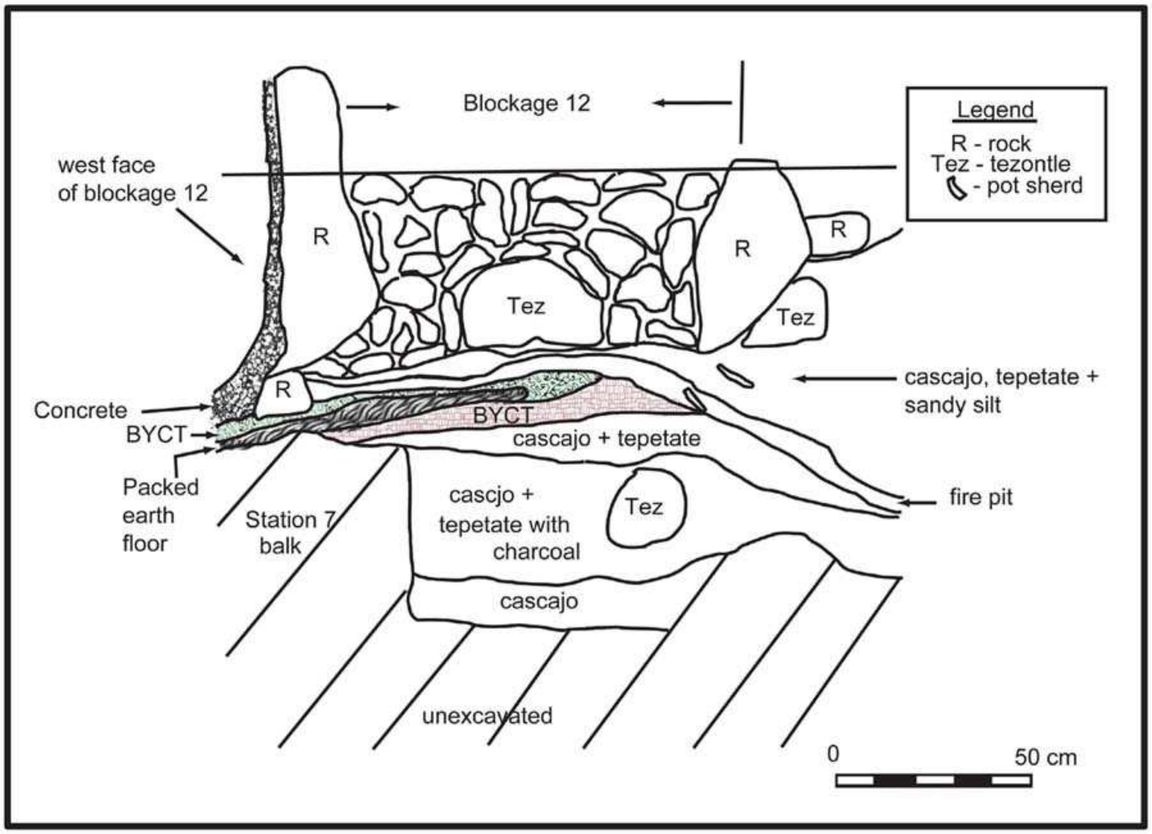

Figure 5. Area C, west pit: north profile east of west face of blockage 12. After Altschul 1978a:144.

Excavation at area C indicated that, for each of blockages 11 and 12, the application of concrete to the west face of the blockage and to the floor west of that blockage occurred as one "episode." It is unknown whether all of the episodes that built each blockage and laid concrete up to the location of the next blockage were contemporaneous, making them all one "event," or whether significant periods of time elapsed in between the building of one blockage and construction of the next. The floor of the cave in the shorter, western section is also covered in concrete, so the question for this part of the cave is whether this concrete application occurred at the same time as construction of the most western blockage, or as a separate event.

The cave had multiple periods of use, but how many is not known. A simple way of looking at the possibilities is to divide the cave into two time periods – before the sealing of its floor with concrete, and after. The "after" period is itself subject to multiple stages. The eastern section of the cave was made inaccessible by blockage construction, but these were breached at some point in time. The western section would have been open after blockage construction, only finally being closed when the entrance of the cave was blocked from the outside. The systematic removal in the 1970s of cave surface material considered rubble, meaning material on top of the concrete floor, makes it difficult to reconstruct the history of the cave after the sealing of its floor with concrete.

The focus of this report is a reconstruction of cave events before its floor was sealed with concrete. Luckily for archaeologists, the concrete floor provides a fairly impermeable cap over what lies beneath. Because it still has to be determined whether Teotihuacán use occurred after the application of concrete, the cave events discussed in this report are referred to as early Teotihuacán use, thus avoiding the presumption that this use was the only Teotihuacán use.

Research Design

Figure 1 shows the location of each of the four TMP test excavations in the cave. One excavation was conducted as near to the terminus of the cave as was possible given the previously excavated condition of that location (TE 28 B is area B). One was at the entrance to the cave (TE 28 D is area D), and two were toward the center: one in the South Transverse Chamber (TE 28 A is area A) and one spanning blockages 11 and 12 (TE 28 C is area C). Excavation was done by natural layers, all layers represent cultural activity, and all excavation was to bedrock.

The Teotihuacanos made a series of modifications to the cave. By selecting charcoal samples that stratigraphically related to some of these modifications, I anticipated being able to date the modifications. The first modification I was interested in dating was the initial leveling of the cave floor. In each of the four test excavations it appears as if the first step in preparing the cave for use was addition of fill to level the cave floor (Altschul 1978a:50, Altschul 1978b:10, 19, 23, 33). I selected charcoal from this layer as a way to date it, which, in turn, should date early cave use.

The second modification I was interested in dating was the application of concrete. Specifically, I wanted to date construction of blockages 11 and 12, which I have argued above should also date the concrete floor in area C, and the laying of the concrete floor in areas A and D (area B does not have a concrete floor). With respect to blockage construction, I selected charcoal samples in close proximity to the blockages and from layers that seemed to have been part of their foundations. The specifics of this evidence are found in the next section of this report. With respect to dating the laying of the concrete floor in the South Transverse Chamber and cave entrance, I selected charcoal samples that occurred on the surface of the layer on which the concrete rests. Admittedly, this association was not a guarantee of dating the laying of the concrete floor, but it was the best that could be achieved. No samples were selected from on top of the concrete floor, given the total lack of provenience afforded by such a location. I had to trust in a comparison of dates from areas A and D with the blockage construction dates of area C to ascertain whether the former could reasonably date the concrete floor in the respective areas.

Whereas dates from the lowest fill layer were expected to date the beginning of early, organized use of the cave, dates from blockage construction and laying of the concrete floor were expected to date the end of this initial, organized use, at least in the section that was blocked up. By early or initial organized use, I mean the likely state-sponsored utilization of the cave that seemingly occurred during the Tzacualli and Miccaotli phases. Bracketing this time period by radiocarbon dating two cave modifications that seem to define its beginning and end was expected to produce an absolute time frame for early use. In areas C and D the presence of a packed earth floor, as well as other cultural layers, sandwiched between the initial fill layer and the concrete attests to use of the cave during the period bracketed by the modifications that are the focus of this study.

In addition to dating the two cave modifications just discussed – the initial addition of fill to level the cave floor and the application of concrete – I tested a hypothesis. Could each modification be considered a single event? That is, was the modification made over a compressed enough period of time that, according to the technical limitations of radiocarbon dating, it could be considered as having occurred at the same time? Sequential construction of blockages, for example, one at the end of consecutive 260-day ritual years or vague years would be considered a single event, as well as would, obviously, construction of the blockages with no intervening time lapses. On the other hand, construction over a time period that involved significant down time would not be considered a single event, as for example would be the case if individual blockages or blockage subsets were built at the end of sequential Calendar Rounds. Although vague, this definition of event is as precise as the dating method allows. I hoped that the results for each modification would be clear enough to point in the direction of one event or multiple events, not landing in the gray area of indeterminacy that would be the middle range of these examples.

To have any chance of success with this dating project, sample selection had to proceed within a framework that always kept in mind the potential accuracy and precision of each sample. Accuracy refers to the correctness of the dating result. Is the date a true date? Accuracy is affected by variables such as mislabeling of the sample, mixing of the sample (e.g., not having a sealed context, multiple fires), contaminants (e.g., rootlets or other organic material that are not part of the sample being dated), and other sample conditions (e.g., highly volcanic soil or old wood). An inaccurate sample will produce an inaccurate date. *A priori* it seemed that the most serious variable affecting the accuracy of the cave samples would be mixing. Fortunately, the cave is not subject to bioturbation, and the archaeological deposits below the concrete have not been disturbed with the exception of one rodent burrow and a small number of looter's pits of undetermined age. Little mixing, then, has occurred from post depositional processes.

However, I anticipated mixing of charcoal to have occurred while the cave was in use. The cave is quite narrow (see Figure 1), and as all of it is in the dark zone, fires, torches, censers, or some other form of artificial light was necessary. Given these conditions it seemed possible that any given charcoal concentration might not represent a single burning episode. Carefully controlled excavation practices minimized this possibility because any change in soil composition mandated a new layer designation, but, nevertheless, it had to be recognized that fire pits could have been made on top of one another or that torches could have been placed in the same locations multiple times. The bottom line is that some of the radiocarbon dates may be an average of multiple burning episodes, but it was hoped that the results would still differentiate.

Precision references the statistics of the dating method. It refers to the random errors in the counting statistics. In theory many counts of the same sample would produce a normal (Gaussian) curve, which is why error is expressed in terms of standard deviations. The 1 sigma error term means there is a 68.3% chance that the true date lies within this bracket; 2 sigmas define a 95.4% chance of the true date falling within that range. A precise date has small standard deviations. Although there is nothing inherent in the AMS method to make it produce more precise results than standard ^{14}C dating (hereafter referred to as radiometric), practical considerations tend to make this the outcome. For example, final carbon weight and length of counting time affect the precision of radiometric dating, but not so much AMS. The effective result is that AMS dating tends to produce more precise results than radiometric.

Accuracy is critical and precision desirable for any given sample. The two operate independently of each other: a precise result is not necessarily accurate, and vice versa. Accuracy was needed for obvious reasons; precision was also especially important because ceramics indicated that use of the cave prior to its floor having been sealed with concrete occurred mostly during the Tzacualli and Miccaotli phases, a fairly short time period (Figure 3). This brief overview illustrates factors that were important not only in sample selection but in the choice of dating method, radiometric or AMS. Detailed discussions of accuracy and precision, radiometric and AMS dating can be found in Taylor 1987, Bowman 1990, Taylor *et al.* 1992, and Gillespie 1986.

Sample selection was highly discriminatory. All samples came from undisturbed areas, and, in all areas except B, samples were under intact sections of the concrete floor. As has been noted, most attention was given to samples in the lowest fill layer or in close proximity to concrete or blockage construction. It was important to achieve an even distribution of samples between the four areas, although area C was considered the most important because it was the only area that contained blockages. Of help in area C was a sample dated by Emily McClung de Tapia at the Laboratorio de Paleoetnobotánica y Paleoambiente of Universidad Nacional Autónoma de México (UNAM), funded by Programa de Apoyo a Proyectos de Investigación e Innovación Tecnológica, Dirección

General de Asuntos del Personal Académico, UNAM. Her date is listed in Tables 1 and 2 as 208984. It was dated by Beta Analytic and is included in my analysis.

Twenty-four charcoal samples were submitted to Beta Analytic for pretreatment. Upon learning the final carbon weights and noting any comments by staff of sample condition, I made the final decision as to which samples to date. As per Beta Analytic's guidelines (Beta Analytic 2006), but surprising nonetheless, many of my samples lost about 75% of their initial weight, a weight that to the naked eye appeared to be virtually all charcoal. Based on the greatly reduced weights of the samples and the need for precision, I decided to perform AMS dating on most of the samples.

The Radiocarbon Dates

Tables 1 and 2, shown below, summarize important information about each of the radiocarbon dates and provide a useful reference for the following discussion. Table 1 gives the specifics of dating method and context, and Table 2 provides the dates. The samples were encountered under a range of conditions, which the column "Charcoal description" in Table 1 attempts to capture. "Fire pit" provides the clearest evidence of *in situ* burning and refers to a significant charcoal concentration with the presence of ash noted in the field. "Concentration" identifies a lens of charcoal for which ash was not present or not noted; given their compact nature it is assumed that the burning that produced them (torches, censers, or similar) occurred at that spot. And, finally, "pieces" were just that – pieces of charcoal in a defined enough area to warrant collection. The assumption is that they represent some type of activity that is relevant to the layer in which they were found. Most of these were in the fill layer that initially leveled the cave floor.

Table 1. Properties of the radiocarbon samples.

Beta Sample #	Analysis	Final Carbon Weight	Area	Context	Charcoal description
220743	AMS		A	fill layer under concrete	pieces
220744	AMS		A	under & in contact w/concrete floor	pieces

220745	Radiometric	7.5 g	A	fill layer under concrete	concentration
220746	AMS		B:NE Pit	pillar collapse	pieces
220747	AMS		B	BYCT**	concentration
220749	AMS		B	posthole	concentration
220750	AMS		B	posthole	concentration
220753	Radiometric w/EC*	4.3 g	C	BYCT under concrete at blockage 11	fire pit
220754	Radiometric w/EC	6.1 g	C	lowest fill layer under concrete	concentration
220756	AMS		C	BYCT under concrete at blockage 12	concentration
220758	Radiometric w/EC	6.2 g	C	under blockage 12	fire pit
220760	AMS		C	lowest fill layer under concrete	pieces
208984#	Radiometric		C	cascajo matrix under concrete	fire pit
220763	AMS		D	under concrete	fire pit
220764	AMS		D	under	fire pit

				concrete	
220766	AMS		D	lowest fill layer under concrete	pieces

* EC refers to Extended Counting
# McClung de Tapia's sample
** Bright Yellow Crushed Tepetate

Table 2. The radiocarbon dates.

Beta Sample #	Area	Conventional Radiocarbon Age	Intercept with Calibration Curve	1 Sigma Calibrated Result	2 Sigma Calibrated Result
220743	A	1930 +/- 40 BP	CE 70	CE 40 to 110	10 BCE to CE 140
220744	A	1970 +/- 40 BP	CE 40	10 BCE to CE 70	50 BCE to CE 110
220745	A	1830 +/- 40 BP	CE 220	CE 130 to 240	CE 90 to 260
220746	B:NE Pit	1840 +/- 40 BP	CE 150	CE 120 to 230	CE 80 to 250
220747	B	1910 +/- 40 BP	CE 90	CE 60 to 130	CE 20 to 220
220749	B	1810 +/- 40 BP	CE 230	CE 140 to 250	CE 110 to 330
220750	B	1870 +/- 40 BP	CE 130	CE 90 to 220	CE 60 to 240
220753	C	1810 +/- 40 BP	CE 230	CE 140 to 250	CE 110 to 330
220754	C	1970 +/- 40 BP	CE 40	10 BCE to CE 70	50 BCE to CE 110
220756	C	1750 +/- 40 BP	CE 260	CE 240 to 350	CE 220 to 400
220758	C	1790 +/- 40 BP	CE 240	CE 220 to 260	CE 130 to 350
220760	C	1830 +/- 40 BP	CE 220	CE 130 to 240	CE 90 to 260

208984#	C	1920 +/- 60 BP	CE 80	CE 30 to 130	40 BCE to CE 230
220763	D	1760 +/- 40 BP	CE 250	CE 230 to 340	CE 150 to 390
220764	D	1890 +/- 40 BP	CE 110	CE 70 to 140	CE 40 to 230
220766	D	1930 +/- 40 BP	CE 70	CE 40 to 110	10 BCE to CE 140

McClung de Tapia's sample

Figure 6. South Transverse Chamber, looking south, showing excavated area A and location of charcoal samples, with Beta lab number noted. © R. Sload.

Area A – South Transverse Chamber

Area A was the test excavation in the South Transverse Chamber (Figure 1). It consisted of two pits, each having an excavated area of 1 m x 1.25 m (Altschul 1978a:36). Compared to excavated areas in the main east-west cave, the stratigraphy of area A was very simple: fill to level the cave floor, covered by a Teotihuacán concrete floor (Figure 6). Seemingly matching the simple stratigraphy was a general lack of cultural material. Area A produced only 2% (6 of 273) of TE28 sherds; all six phase to either Tzacualli or Miccaotli. This dearth extended to charcoal as well. The samples chosen for radiocarbon dating were basically all that were available. Whether the general lack of cultural material in area A is a function of the location of the two TMP test pits or whether it represents the general condition of the South Transverse Chamber is unknown, but the fact is that area A was fairly sterile.

Three charcoal samples were dated from area A (Figure 6). All were under intact sections of the floor. Beta 220743 was from the north test pit. The point at which its conventional radiocarbon age intercepts the calibration curve (hereafter referred to as the intercept date or intercept year[2]) is CE 70 with a 2 sigma range of 10 BCE to CE 140. Two charcoal samples were from the south pit of area A. Beta 220744 was charcoal directly under the concrete floor. It has an intercept date of CE 40, with a two sigma range of 50 BCE to CE 110, thus agreeing with the dating of Beta 220743. Beta 220745 has an intercept date of CE 220, with a 2 sigma range of CE 90 to 260. It was a lens of charcoal that was first detected several cms below the concrete floor and was up to 8 cm deep (Altschul 1978a:49). These three charcoal samples probably represent two distinct time periods because there is no overlap at the 1 sigma range between the 2 early samples and the late sample (see Table 2).

Samples 220743 and 220744 are among the earliest from the cave, and fairly closely agree with each other. Being "pieces" of charcoal, they present the least convincing evidence for *in situ* activity in terms of the scale set up for Table 1. Both lacked ash, and the cascajo under the charcoal was not discolored from heat (Altschul 1978a:43, 1978b:4). Beta 220743 was scant charcoal from the fill that was used to level the cave floor (Altschul 1978a:52). Beta 220744 was burnt wood remains, some of which were found adhering to the bottom of the concrete (Altschul 1978a:43). Although the contexts of the two samples raise questions about their accuracy, meaning they might be intrusive and not date activity in the South Transverse Chamber, their combination argues otherwise. There is more than one early sample, one recovered in the south pit and one in the north pit; one sample was immediately under the concrete and one was deeper in the fill layer; and, finally, both were under the concrete floor. This combination of evidence suggests that both samples accurately indicate that the South Transverse Chamber was in use early in the cave's history.

Another issue that must be considered in evaluating the area A dates is the combination of Beta 220744 and Beta 220745. Beta 220745, with an intercept date of CE 220, was first encountered several centimeters under the concrete floor. As the latest date of the three in area A, it provides a time period earlier than which the concrete floor could not have been laid. Of the three area A dates it would seem to have the fewest accuracy issues because it was a substantial band of charcoal that yielded the heaviest final carbon weight of all the samples in the analysis (see Table 1). The presence of Beta 220744 with an intercept

[2] Due to the way that Beta Analytic calibrates conventional radiocarbon ages, the intercept "year" refers to a decade (Stuiver et al. 1998).

date of CE 40, clinging to the bottom of a concrete floor that likely dates almost 200 years later, raises serious questions regarding the degree of utilization of the South Transverse Chamber. A scenario of sparse utilization is supported by the paucity of cultural material already discussed and by the fact that no packed earth floor, such as would form through use, was found in area A (Altschul 1978a:39). If it is assumed that all three dates are accurate, they really only seem to make sense under a scenario that sees an early leveling of the floor of the chamber, followed by very intermittent use that was not sufficient to either disturb the early activity represented by Beta 220744 or create a packed earth floor, followed some two centuries later by the sealing of the chamber with a concrete floor.

Figure 7. Area C prior to excavation. At blockage 11 looking west to back of blockage 12 (drain stone is leaning against north side). © René Millon.

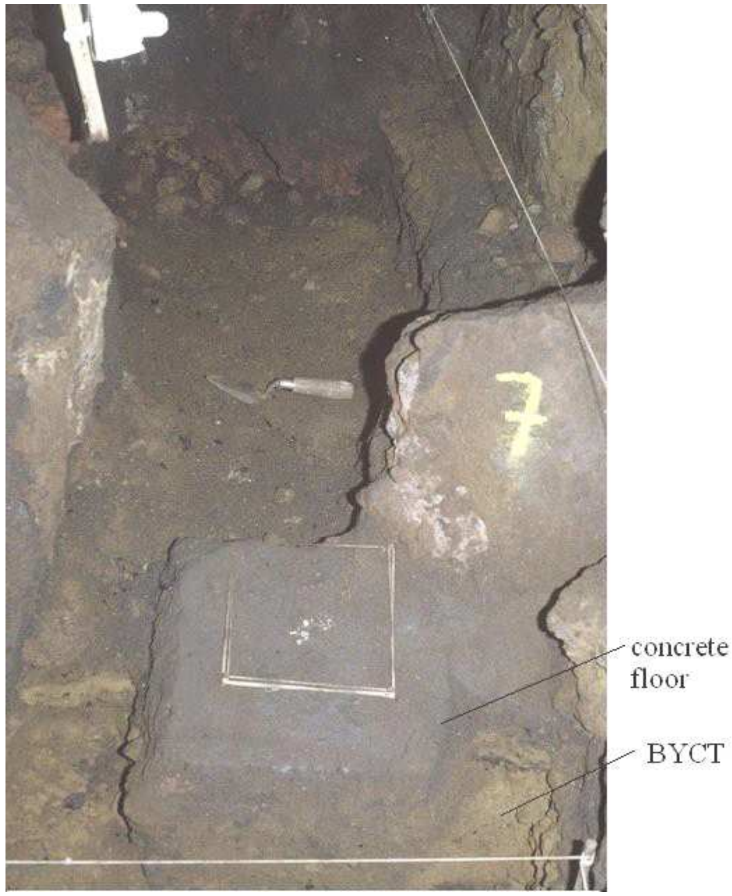

Figure 8. Area C, west pit, blockage 12 at Station 7. Beta 220758 was in the area of the trowel but in a lower layer. © R. Sload.

Area C – Encompasses Blockages 11 and 12

The test excavations at area C consisted of two pits that spanned blockages 11 and 12 (Figure 7). Excluding the balks each pit measured 2 m x 1.2 m (Altschul 1978a:101), although large sections of each pit could not be excavated because they fell under existing remnants of the blockages. Few generalizations can be made about stratigraphy because of the degree to which area C had been altered by blockage foundation work and fire pits. Therefore, stratigraphy will be discussed on a date-by-date basis, as needed.

I dated five charcoal samples from area C, which, when combined with McClung de Tapia's sample, make six dates for analysis. Two samples came from the lowest fill layer, Beta 220754 from the east pit and Beta 220760 from the west pit. Beta 220754 was a substantial charcoal concentration, having an intercept date of CE 40, with a 2 sigma range of 50 BCE to CE 110. This date is in line with the two early dates from area A. Beta 220760 is an exception, with an intercept date of CE 220 and a 2 sigma range of CE 90 to 260. It was several pieces of charcoal clustered together under a large tezontle rock (Altschul 1978a:134). This sample has an impossible date for its location. Accuracy issues aside, it is of course possible that the "real" date is at the early end of the two sigma range, in which case the sample would be in better, but still not great, alignment with the other early dates. Of all 16 dates, Beta 220760 is the most anomalous in terms of the archaeology not matching the dating, and, other than saying that it must have originated in a layer closer to the concrete floor, I cannot explain it.

The other four samples from area C were much closer to the surface. Two samples Beta 220753 and Beta 208984 were from the east pit where blockage 11 is located, and two samples Beta 220756 and Beta 220758 were from the west pit where blockage 12 is located. Beta 220753 was a fire pit, "clearly concentrated along the west edge of blockage 11" in a layer of bright yellow crushed tepetate (BYCT) (Altschul 1978a:113). Throughout area C, BYCT seems to have been used as a preparatory surface for construction of the concrete floor and the blockages (Altschul 1978b:18, 20, 22, 25) (cf. Figure 8). Beta 220753 has an intercept date of CE 230, with a 2 sigma range of CE 110 to 330. Beta 208984 was a fire pit that was concentrated along the north wall of the pit, which also means the north cave wall, in between blockages 11 and 12 (Altschul 1978a:108, 126). It has an intercept date of CE 80, with a 2 sigma range of 40 BCE to CE 230. Beta 220756 in the west pit was a charcoal concentration in BYCT under the concrete floor just north of Station 7 (Altschul 1978a:123), which places it near the west face of blockage 12. Its intercept date is CE 260, with a 2 sigma range of CE 220 to 400. Beta 220758 was the fire pit that Millon (1993:22, 1981:234) describes as centered under blockage 12, which contained an offering of shell and fish bone. Its intercept date is CE 240 with a 2 sigma range of CE 130 to 350.

Figure 8 shows the location of Beta 220758; Beta 220756 is just out of the picture's range, on the near side of the blockage, north of the Station 7 marker. I chose these two samples, as well as Beta 220753 at blockage 11, because archaeologically they seemed associated with blockage construction. This idea is supported by the dates. The three samples have intercept dates spanning 30 years: Beta 220753 with CE 230, Beta 220756 with CE 260 and Beta 220758 with CE 240. On the basis of these three dates, given the limitations of the dating method discussed earlier and the definition of event, it seems likely that the construction of blockages 11 and 12, and the attendant laying of the concrete floor in this area, were a single event. Beta 208984, McClung de Tapia's sample, probably represents "use," an activity that occurred after the initial leveling of the cave floor and prior to blockage construction.

Figure 9. Area B prior to excavation, looking east. Area B is beyond Station 10 in middle of picture. The bolsa in distant background is at the eastern end of East Chamber in the terminus. © René Millon.

Area B – Near Terminus of Cave

Area B was at the end of the cave near the entrance to the 4-chambered terminus (Figure 9). An east and a west test pit were excavated, each measured 1 m x 1.75 m (Altschul 1978b:8). The east part of the east pit was INAH backdirt (Altschul 1978a:67); all charcoal samples selected for dating were from the west pit.

Three charcoal samples were dated from area B. Figure 10 shows their location. Beta 220747 was charcoal seemingly located between the current earth floor and the next layer, which was BYCT (Altschul 1978b:10). The concentration extended 10 cm below the surface (Altschul 1978a:69). Beta 220747 has an intercept date of CE 90, with a 2 sigma range of CE 20 to 220. Both samples Beta 220749 and Beta 220750 were charcoal concentrations around a posthole (Altschul 1978b:11) (see Figure 10 and Figure 11). Beta 220749 has an intercept date of CE 230, with a 2 sigma range of CE 110 to 330. Beta 220750, which was beneath 220749, has an intercept date of CE 130, with a 2 sigma range of CE 60 to 240.

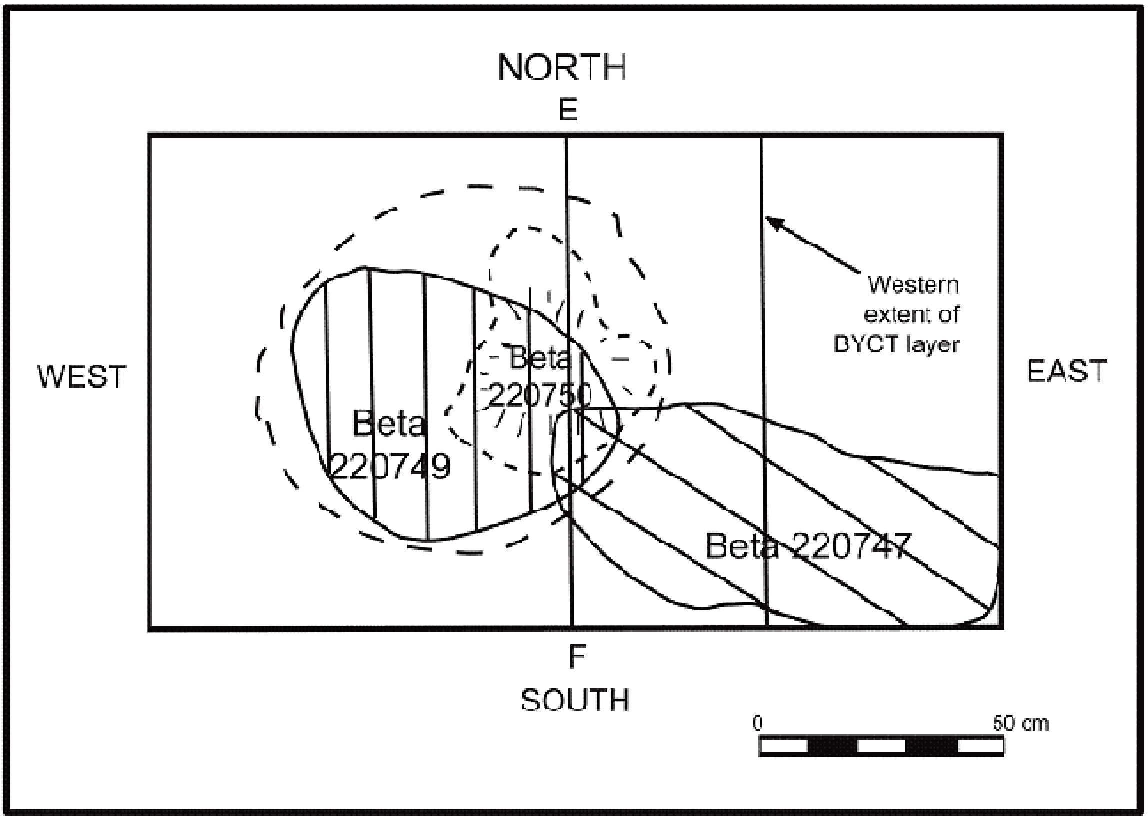

Figure 10. Plan view of area B, west pit showing relationship between charcoal samples (hatching) and posthole (dotted lines). Adapted from Altschul 1978a:68, 72, 99.

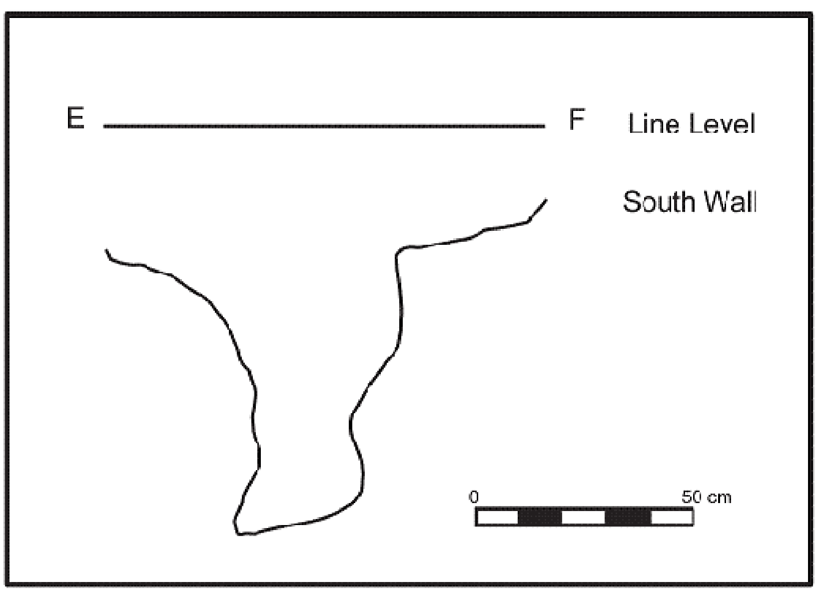

Figure 11. Area B, west pit showing posthole cross-section on line E-F of Figure 10. After Altschul 1978a:96.

In order to understand why it makes sense for the sample closest to the surface Beta 220747 to have the earliest date, it is necessary to examine the archaeology of area B. Area B, unlike Areas A, C, and D, does not have a Teotihuacán concrete floor and apparently never did (Altschul 1978b:14). It has previously been suggested that the hundreds of varying sized basalt *lajas* found stacked in the terminus may have once formed a floor (Millon 1981:234). The idea of a *laja* floor in the terminus is supported by a couple of lines of evidence from area B. The current surface of the cave, a packed earth floor, varies in thickness in the west pit from a couple centimeters to rarely more than 5 cm (Altschul 1978a:91-92); in the east pit over the INAH backdirt it is 2-3 cm thick (Altschul 1978b:8). This floor in the latter pit had to have formed in a relatively short period of time, most likely aided by the carting out of the cave the material discussed earlier. I suggest that the slightly-thicker-on-average-compared-to-east-pit earth floor in the west pit could have been largely formed also by the movement of people through the cave since the top halves of the blockages were first breached an unknown number of centuries ago.

Beneath the earth floor in the undisturbed western section of the east pit and the easternmost 50 cm of the west pit is a layer of BYCT (Altschul 1978a:72). If it is true that the current earth floor is a post-Teotihuacán creation, then the BYCT layer would have been the most recent intact Teotihuacán layer. In 1978 Altschul (1978b:14) thought it indicated preparation for some type of surface. It was seen in area C that a layer of BYCT seems to have been put down as a preparatory surface for construction of the concrete floor and blockages, so it is entirely possible that the BYCT in area B was a preparatory surface for the *laja* floor. Given the absence of permanent flooring in what was undoubtedly a very important part of the cave, this suggestion makes sense.

Figure 10 shows the (approximate) western edge of the BYCT layer. This edge roughly corresponds to the eastern edge of the posthole, and it is a certainty that activity around the posthole, including the initial setting of the post and its subsequent removal and filling of the hole, would have disturbed the BYCT. In fact, past the edge of the BYCT to the west where the posthole is located the soil is described as "composed of more cascajo than tepetate" (Altschul 1978a:71), suggesting a mixing of the BYCT layer with the "solely" cascajo fill that was the layer beneath the undisturbed tepetate layer (Altschul 1978a:71). According to this scenario, the BYCT layer would have been present *before* the post was set and would have covered the entire pit.

It is within this context that Beta 220747 makes sense. Figure 10 shows that it runs east-west along the southern edge of the test pit, is not centered on the posthole, and is half in the undisturbed BYCT layer. Although lacking ash, it may be a primary deposit because the tepetate in the southeast corner of the pit was discolored, suggesting fire (Altschul 1978a:69). These data are consistent with an interpretation of Beta 220747, with an intercept date of CE 90, representing activity associated with construction or possibly repair of the laja floor.

Figure 10 also shows that Beta 220749 and Beta 220750 were centered on the posthole, suggesting that both samples reflect activity associated with the pole. As would be expected, the stratigraphically lower Beta 220750 has an earlier date than Beta 220749 (Table 2).

One other sample was dated from area B, this from an area referred to as the NE pit (Figure 1). Beta 220746 was the only sample from the actual terminus of the cave. As part of the excavation in area B, rubble was cleared from the northeast pillar at the entrance to the North Chamber. This was done to determine whether previous excavation extended completely to the wall of the chamber, which turned out to be the case (Altschul 1978a:76, 77). In the course of excavating, a section of the Teotihuacán-constructed pillar collapsed (Altschul 1978a:81). Beta 220746 was charcoal from the pillar collapse and, as such, was undisturbed material, although not *in situ* evidence of burning. The expectation was that this sample dates activity in the terminus of the cave and would define a time period before which the pillar could not have been constructed. Its intercept date is CE 150, with a 2 sigma range of CE 80 to 250. This date falls solidly between those for the initial leveling of the cave floor and laying of the concrete, and thus could very well date activity in the terminus.

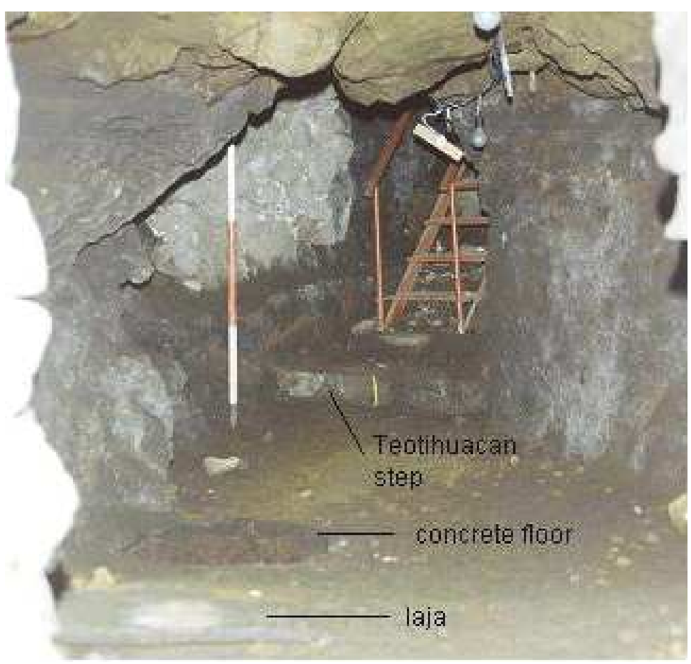

Figure 12. Area D – the general area of cave entrance before excavation, looking west. Pit on south side of cave had been excavated prior to TMP work. © R. Sload.

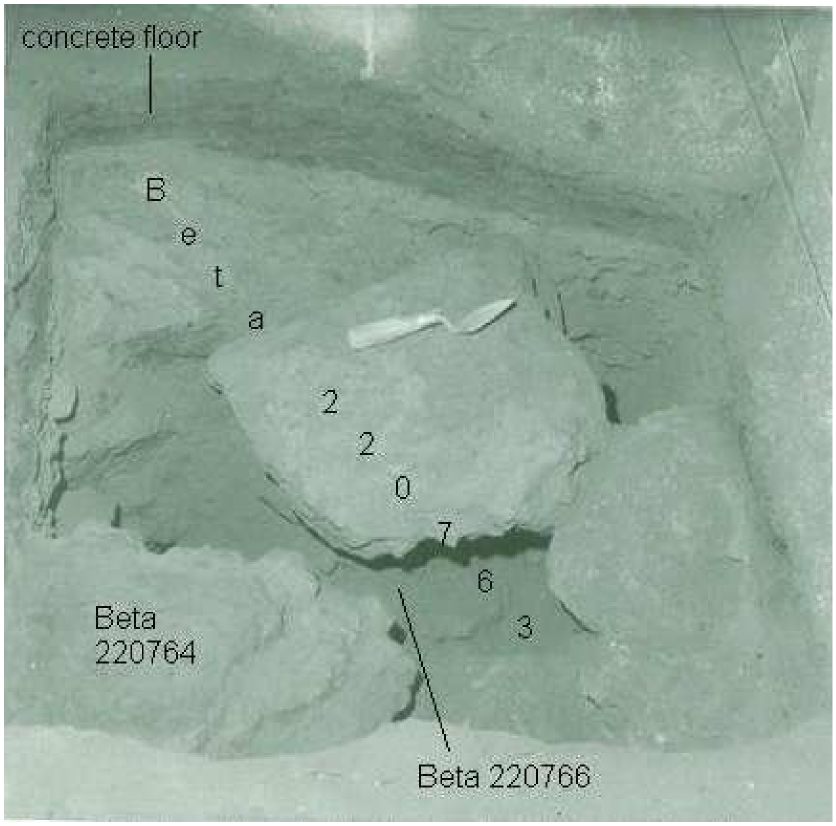

Figure 13. Area D test pit at base of north end of Teotihuacán step. Pit at completion of excavation, noting location of charcoal samples. Yellow vertical line on step provides tie to Figure 12. © R. Millon.

Area D – Entrance to Cave

The one test pit in area D covered an area approximately 1.05 m by 0.90 m (Altschul 1978a:31) (Figure 12 and Figure 13). Three charcoal samples were dated; all were sealed by an intact concrete floor (Figure 13). Two samples were in the layer immediately under the concrete floor (Altschul 1978a:160-163). Beta 220763 was a fire pit that ran diagonally through the test pit (Altschul 1978a153). Its intercept date is CE 250, with a 2 sigma calibrated range of CE 150 to 390. This date is consistent with all of the other late dates from areas A, B, and C, and provides a date before which the concrete floor could not have been built. Beta 220764 is also from the layer directly under the concrete floor, but from the southeast corner of the pit, outside the area occupied by Beta 220763 (Altschul 1978b:32). The presence of some ash, although not as much as with Beta 220763, identifies it as a possible fire pit (Altschul 1978b:32) The intercept date of Beta 220764 is CE 110, with a calibrated 2 sigma range of CE 40 to 230. It can be interpreted as representing use of the cave. The third sample Beta 220766 was from the lowest layer, the fill used to initially level the cave floor. Its intercept date is CE 70, with a 2 sigma calibrated range of 10 BCE to CE 140. This date agrees well with the others that are interpreted as dating the lowest fill layer (Tables 1 and 2).

Discussion

The following discussion uses intercept dates as a way of writing about the samples in an abbreviated way. It is not meant to imply belief that the date of the episode referenced by the charcoal occurred in the intercept "year." It is always useful to consider the 1 and 2 sigma ranges of the samples when evaluating the following analysis. But, the intercept date provides a way of *relatively ordering* on a time scale the samples, while realizing, of course, the possibility that some minor rearrangement of the ordering may have to occur to obtain the actual sequence of events. I chose this way to organize the discussion because it seems the least cluttered way to compare dates and offer reconstructions. The discussion always takes into account the archaeological context of the samples, and except for Beta 220760, assumes that the samples are accurate. Other than Beta 220760 there is a plausible "fit" between the archaeology and the dates that begins to create a picture for early, organized Teotihuacán use of the cave.

Results from the radiocarbon dating indicate that within the guidelines established in the section Research Design two discrete events can be identified: the initial leveling of the floor of the cave around the middle of the first century CE, and the application of Teotihuacán concrete, which includes blockage construction, not before the middle of the third century CE. The first result was expected; the second was not. To recapitulate, "event" refers to a series of burning episodes all relating to the same cave modification occurring within a brief enough time span to appear to radiocarbon dating as if all episodes occurred contemporaneously.

Viewing the initial leveling of the cave floor as a single event is supported by a couple lines of evidence. One is the consistencies in dates for the samples from the lowest fill layer: Beta 220743 in area A, Beta 220754 in area C, and 220766 in area D. The intercept dates of these three samples, each of which can be considered an episode in the event, in order, are CE 70, CE 40, and CE 70 (Table 2). In addition, it was argued that Beta 220744 in area A, with an intercept date of CE 40, also indicates early use of the South Transverse Chamber. Given the chambers' symmetry, it seems reasonable to assume that the North Transverse Chamber was also in use at this time. Although there were no charcoal samples from the fill to level the cave floor in area B, Beta 220747 indirectly corroborates the single event hypothesis. Its intercept date of CE 90 in a layer that may have served as a preparatory surface for a laja floor in the terminus indicates that the initial leveling of the cave floor was completed by this time. The same may be said in area C of Beta 208984 with an intercept date of CE 80. There are thus six dates indicating that the initial leveling of the cave floor occurred around the middle of the first century CE.

This dating is significant for a number of reasons. It suggests that the cave was earlier than any of the four quarry tunnels east of the Pyramid of the Sun. Manzanilla *et al.* (1996:259-260) report one radiocarbon date out of 29 that is comparably early. This was from the Cueva de la Basura and is Beta 69912 with an intercept date of CE 80 and a 2 sigma range of 180 BCE to CE 370 (Manzanilla *et al.* 1996:259). Their next earliest radiocarbon date is Beta 69910, also from Cueva de la Basura, with an intercept date of CE 440 and a 2 sigma range of CE 260 to 630 (Manzanilla *et al.* 1996:259). They suggest that the earliest sample may date the initial quarrying for tezontle that was needed for the large-scale construction activity of the first century CE (Manzanilla 1994:59, Manzanilla *et al.* 1996:248). This makes sense. However, comparisons of the location of the cave to the four quarry tunnels and of the radiocarbon dates from the cave to those for the four quarry tunnels indicate that the two data sets are quite different.

Not only does the cave seem to be earlier, but in conjunction with the carefully engineered interdependencies found between the cave and the Pyramid (Sload 2005), the suggestion is that the Pyramid of the Sun and its cave were designed within a well-developed set of beliefs. Combined with the fact that the Pyramid of the Sun is one of the largest pyramids in the world, the indication is that while it may be true that pyroclastic material was extracted from the cave for use in surface building projects, there was a belief system driving this behavior. The activity of using cave material for surface construction would seem to relate more to ritual behavior designed to utilize the animating or power-producing properties of the extracted material and to link two (under world and surface) or three (under world, surface, and upper world) levels of the universe than to the need for a quarry. All evidence points to the emic view being that the cave was a cave and not an extraction tunnel.

A number of dates can be interpreted as “use” dates. That is, the samples represented by these dates probably reflect various activites that occurred in the cave after completion of the initial leveling, a modification that would have made the cave much easier to traverse. Two of these “use” dates, Beta 220747 and Beta 208984, have just been referenced as defining the upper end of the fill-to-level-floor event. These two samples and the four episodes that are defined as the initial leveling of the cave floor “event” are shown in Table 3 as the earliest six dates. The next three earliest intercept dates in Table 3 can also be interpreted as representing episodes of cave use. The date in area D Beta 220764 with an intercept date of CE 110 was interpreted as activity associated with a fire pit on the floor that was subsequently covered by concrete. Beta 220750 in area B, with an intercept date of CE 130, represents early activity associated with the posthole, and Beta 220746 in the North Chamber of the terminus, with an intercept date of CE 150, represents a burning event that was incorporated into the mortar that was used to construct or repair the pillar on the eastern side of the chamber's entrance. All of these use dates are consistent with the ceramic evidence that points to a Teotihuacán use of the cave during Tzacualli and Miccaotli. They also indicate that the initial leveling of the cave floor was carried out as part of a plan that envisioned for the entirety of the cave the uses to which it was put immediately afterwards.

Table 3. Distribution of radiocarbon samples by intercept date and excavation area.

INTERCEPT DATE - CE	# SAMPLES	AREA
40 - 50	2	A, C
60 - 70	2	A, D
80 - 90	2	B, C
100 - 110	1	D
120 - 130	1	B
140 - 150	1	B
160 - 170		
180 - 190		
200 - 210		
220 - 230	4	A,B,C,C
240 - 250	2	C, D
260	1	C

Table 3 shows that there are seven samples with intercept dates after CE 210. Eliminating the anomolous Beta 220760 from area C, which was discussed earlier, discussion centers on six dates. These dates cluster between CE 220 and 260. The clustering is clear because there are no intercept dates later than CE 260 and there is a gap of 70 years between the earliest intercept date in this cluster and the latest "use" date, which was from the pillar collapse. Taken alone, these six dates provide a time frame for the earliest that construction of the concrete floor and blockages could have occurred. At the same time, a hypothesis is being tested: Was this modification a single event? The archaeology of the three samples I selected because they seemed to relate to blockage construction suggests that they may do more than just define the earliest at which this modification could have occurred – they may actually date the modification itself. These intercept dates exhibit good clustering, which supports viewing the construction of blockages 11 and 12 as one event. Beta 220749 in area B adds more support. This sample was interpreted as representing activity at the posthole near the terminus of the cave. Its intercept date of CE 230 indicates that the cave was still open along its entire length at this point in time. It suggests that blockages 2 through 11 were probably built as part of one event, since its intercept date, as well as 1 and 2 sigma ranges, are the same as that of Beta 220753 at blockage 11. Evidence with respect to construction of blockages 13 through 18 is non-existent. The other two samples in this cluster, Beta 220745 in area A and Beta 220763 in area D, do not help because both of these samples are west of blockage 18. Their dates do however provide a time frame for the earliest that concrete could have been applied in that section of the cave that remained accessible after completion of blockage construction. In the South Transverse Chamber the intercept date is CE 220 and at the entrance to the cave, CE 250. The six dates taken together do not display a temporal patterning from east to west that would be expected if these burning episodes occurred as more than one event. Although these dates produce clear lines of evidence for further exploration, their number may be insufficient for definitive statements. The direction indicated, though, is that the application of concrete to the entire cave floor occurred as part of the same event that built the blockages. While it is possible that the event may have taken some time to complete, which includes not being a continuous operation, it seems unlikely that the process was started and stopped according to some major calendar cycle, such as a Calendar Round.

Table 3 highlights two other interesting aspects of the radiocarbon dates. The first is the lack of intercept dates in Miccaotli, a 50 year phase that is proportionately well represented in the ceramics. This discrepancy may illustrate that radiocarbon dates cannot be dissected without corroborating archaeology. It may also be an artifact of my sample selection process. The second interesting phenomenon is that the tight cluster of late dates falls squarely in Early Tlamimilolpa, a result that is not mirrored in the ceramic collections, which averaged more than 90% Tzacualli-Miccaotli. For both the 1976 TMP surface collection and TE28 the numbers of Tlamimilolpa sherds can be counted on two hands. This apparent contradiction, combined with the Miccaotli gap, suggest that before the blockages were built and the cave sealed with concrete it could have experienced a period of abandonment that is measurable by radiocarbon dating as another event. Also supporting this interpretation is Beta 220764, the "use" sample with an intercept date of CE 110 that was directly under the concrete in area D. It seems to represent *in situ* activity at the cave entrance that occurred a full century or more before concrete was applied over it. Beta 220744 in Area A is similar. It has an intercept date of CE 40, was found adhering to the bottom of the concrete, and seems to represent activity that occurred almost two centuries before the concrete floor was laid. Not only do these dates support a period of disuse for the cave, but also, while in use, very limited, respectful access by small numbers of people.

A scenario in which the cave experienced a significant period of abandonment, with blockage construction occurring in the Tlamimilolpa phase, means that the Tlamimilolpa ceramics could have been put in the cave while it was being closed, not as part of a Teotihuacán re-entry. Interestingly, with respect to the possibility of re-entry during the later Teotihuacán phases, both the 1976 surface collection and the 1978 TE28 collection contain no diagnostic sherds from either the Xolalpan or Metepec phases. However, near the cave entrance in the 1976 surface collection there is one sherd each of Thin Orange, San Martin Orange, and Coarse Thin Orange. The Thin Oranges are not phaseable. San Martin Orange is more diagnostic, first appearing in Early Xolalpan, but having good antecedents in Late Tlamimilolpa (Rattray 2001:233). On the one hand, the fairly similar make up of both collections in terms of phasing might suggest no later Teotihuacán use after the initial use; on the other hand, if the cave were re-entered by Teotihuacanos before the fall of the city, it is possible that the visit(s) did not leave behind material remains, or that the clearing of the cave of surface material resulted in such diminished numbers of surface sherds that the distribution appears similar to the pre-concrete collection. Questions relating to later Teotihuacán access to the cave may be unanswerable, but for the purpose at hand, the radiocarbon dates suggest that the Tlamimilolpa sherds could be related to blockage construction and application of concrete.

Conclusion

The results of this work, while consistent, precise and promising, should be considered working hypotheses because of the limited number of dates and because analysis of the totality of the cave material is ongoing. All of the scenarios presented in this report are intriguing and might be clarified by more dates. That said, confinement of the initial, organized use of the cave to a period that pre-dates the “Classic” florescence of not only the city but much of Mesoamerica, combined with the influence exerted by Teotihuacán in other areas of Mesoamerica, makes analyzing the cave important not only to our understanding of the early development of Teotihuacán but to what followed in Mesoamerica as well.

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