Dating the Moon Pyramid at Teotihuacan, Mexico – An analysis of ceramics

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Dating the Moon Pyramid at Teotihuacan, Mexico – An analysis of ceramics [1]

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1. Introduction

1-1. Outline of Teotihuacan archeological sites

Teotihuacan, located in the Valley of Mexico at an altitude of about 2,300 meters, was one of the largest city-states in the Americas. It flourished from the 1st century BC to the 6th century. Architectural activities based on elaborate urban planning was believed to have been taken place between AD 1 and 150 in Teotihuacan.

The axis that served for the urban design was the "Avenue of the Dead," which originated from the Moon Pyramid (152m × 156m, 45m in height) (Fig. 1) and ran south through the central part of the city for about 4 km with the width of 45m. The temple, built on the Moon Pyramid, was deliberately positioned to overlap the sacred Cerro Gordo that rises behind the pyramid. This confirms that the Moon Pyramid was planned to be in harmony with the terrain of the valley and, at the same time, that its location had significant importance from the early years of urban formation [Sugiyama 2000: 33].

More than 20 temples were built along the "Avenue of the Dead." Among them, the Sun Pyramid was a massive monument measuring approximately 223m on one side and 63m in height. It is believed that the pyramid was constructed from around AD 1 to 150 and later expanded and rebuilt from around AD 150 to 250.

In the early 1970s, a "cave" was discovered seven meters below the Sun Pyramid, lying horizontally. Its entrance is locat-

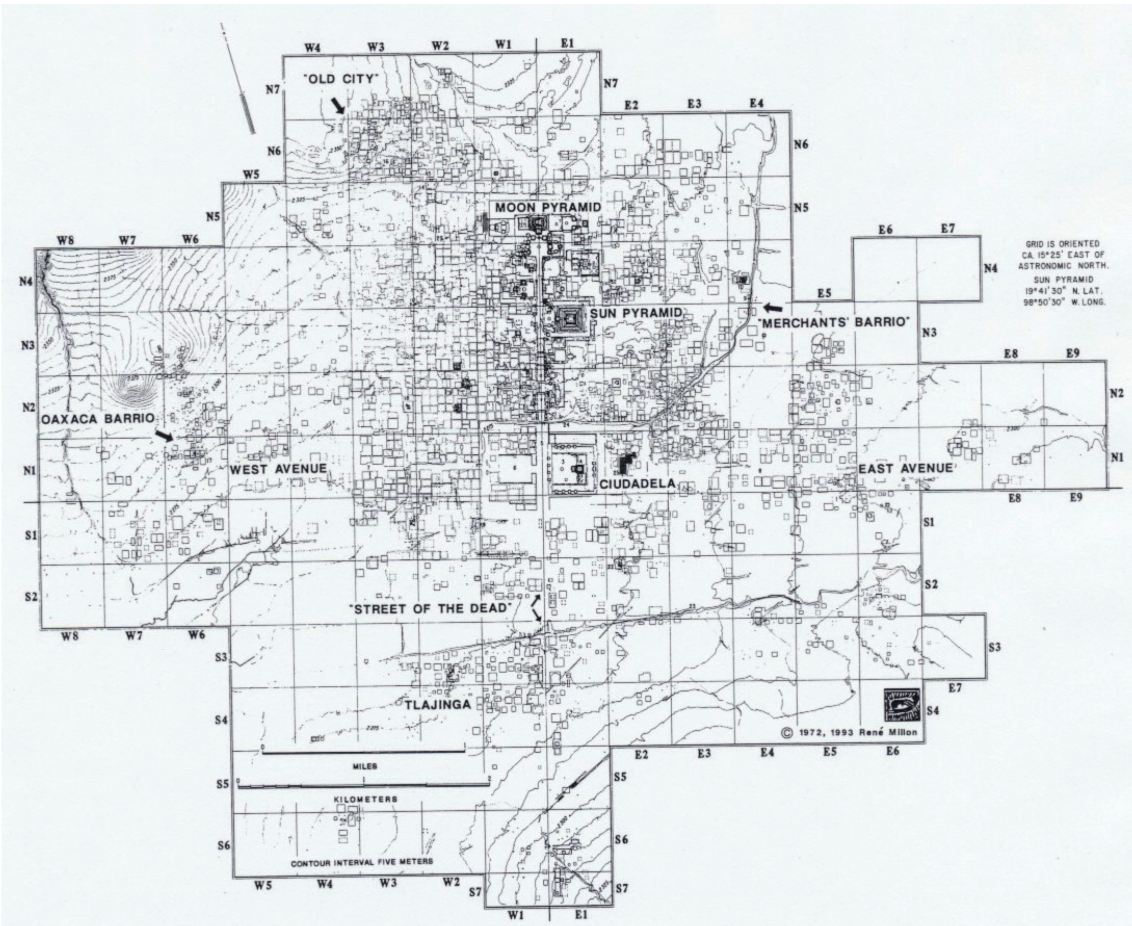

Fig. 1. Map of the entire city of Teotihuacan (Source: Millon 1993: Fig. 2, p.18)

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ed in front of the central stairs on the pyramid's front side. This "cave" was reworked during the Teotihuacan era, and traces of ritual use and robbing in later years were found. It is believed that the Sun Pyramid was built on a natural "cave" that carried sacred significance at the time [Heyden 1995 [1975], Millon 1981].

On the south side of the Sun Pyramid is a large square called "Ciudadela" (about 400m x 400m), and on the east side of the square is the Feathered Serpent Pyramid. This pyramid is the third-largest monument in Teotihuacan, measuring about 65m on one side and 20m in height. Unlike the Moon Pyramid and the Sun Pyramid, this pyramid's four sides were decorated with stone sculptures.

Around the city center were over 2,000 apartment compounds (Fig. 2) stretching over 20 square kilometers. At its prime, the population of Teotihuacan was said to be about 100,000. Dozens of rooms were constructed inside the apartment complex, sharing a courtyard, corridors, and a small shrine. Some of the groups living in the apartment compounds specialized in the production of crafts such as obsidian stone tools, ceramic, and textiles. Teotihuacan was a city-state that controlled the Mexican Central Plateau. Its influence extended to the city-states of the Mayan civilization such as the Tikal[2] and Copan[3] ruins.

The walls of the apartment complex were decorated with many murals [De la Fuente 1995]. Notably, one mural in the "Tepantitla" compound called "Paradise of Tlaloc (Tlalocan)" appears to have been the residence of high-status citizens. The mural depicted ball games, flowering scenes, butterflies resting their wings, and priests sowing seeds on the ground. The "Atetelco" residence compounds featured murals of animals considered to have been sacred in Teotihuacan, such as serpents, coyotes, and felines. Furthermore, compounds in the "La Ventilla" district, excavated by Ruben Cabrera Castro in the 1990s, contained not only murals but also 42 letters inscribed on the floor.

1-2. Purpose of this study

The first purpose is to determine the construction phase of buildings at the Moon Pyramid through ceramic analysis. The Moon Pyramid was expanded and renovated six times to form the current the Moon Pyramid. In this paper, the phase of each building from the oldest, Building 1 to Building 7, is determined with ceramic. When determining the construction date of buildings, radiocarbon dating is commonly used; however, data on the phase of ceramics excavated from the buildings and the ratio of the ceramics, that is, the chronological composition ratio of ceramic, is also important. In addition to the author, Ceferino Ortega and others conducted a ceramic analysis of the Moon Pyramid research. The author's data on the chronological composition ratio of the ceramic from each building can be compared with their data.

The second purpose is to examine the relationship between

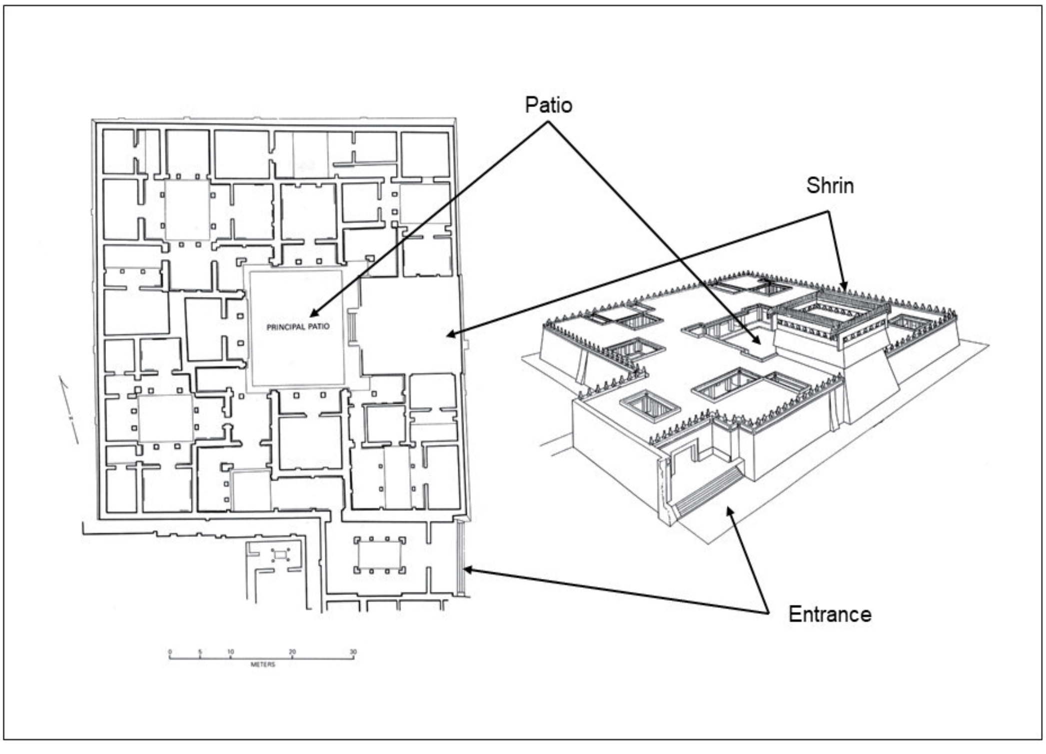

Fig. 2: Plan of Teotihuacan apartment compound (Source: Pasztory 1977: Fig.4.1, Fig.4-2, partially modified)

the Moon Pyramid and other monuments through ceramic analysis. Specifically, the paper examines the relationship between the seven monuments of the Moon Pyramid and the Sun Pyramid and the Feathered Serpent Pyramid.

2. Overview of past research projects

2-1. Teotihuacan archaeological research in the 19th century and 20th century

Many tourists and researchers, including Ramon Almaraz, filed reports on Teotihuacan in the 19th century. Almaraz was the first researcher who conducted a land survey of the Sun Pyramid [Almaraz 1995 [1865]]. It documented that the base of the Sun Pyramid was 232m north-south and 224m east-west.

In the 20th century, Leopoldo Batres excavated and restored the Sun Pyramid [Batres 1995 [1906]]. Batres moved a vast amount of the soil that covered the Sun Pyramid [El Imparcial 1995 [1906]: 122], restoring what was originally a four-tiered pyramid into a five-tiered building [Bastien 1951]. In the 1920s and 1930s, excavations began for constructing a tunnel into the body of the Sun Pyramid [Pérez 1995 [1935], Noguera 1995 [1935]]. Eduardo Noguera performed a detailed analysis of the ceramic, clay figurines, and obtained during the tunnel excavation. Notably, ceramics with negative patterns and Polychrome decorations were unearthed which resembled those from the Moon Pyramid.

Modern archaeological research began in the 1960s. From 1960 to 1975, William T. Sanders led an archaeological project that conducted distribution surveys and trial excavations of archeological sites throughout the Valley of Mexico [Sanders, William T., Jeffrey R. Persons, and Robert S. Santley 1979]. The results revealed the distribution of ruins and demographic movement from 1500 BC to AD 1519 within the 3,500 sq. km of the Valley of Mexico.

The University of Rochester's Teotihuacan Mapping Project, with René Millon as the project leader, began in 1962 [Millon 1973, 1974, Cowgill 1974]. The project team arranged 500m x 500m grids on the ground and surveyed buildings found in the area of 8.5 km east-west (maximum) and 6.5 km north-south (maximum). About 5,000 archeological sites were found within a range of 20 sq. km and artifacts such as ceramic and obsidian were collected from the ground surface. Furthermore, test pits were dug to confirm the data obtained from the land survey and surface collection. As a result of these efforts, a massive amount of data was collected, and ceramic and obsidian workshops were located.

In the 1980s, research centered on the "Ciudadela" and the Feathered Serpent Pyramid. In the 1980-82 research by the National Institute of Anthropology and History (INAH), large-scale excavation of the "Ciudadela" and excavation and restoration of the Feathered Serpent Pyramid were carried out [Cabrera, Rodriguez and Morelos 1982]. Between 1988-89, both the inside and around the Feathered Serpent Pyramid were excavated as part of joint projects between INAH and Brandeis University, and Arizona State University. Consequently, 25 burials, including a total of 137 burials, were found. Saburo Sugiyama interpreted the offerings, burial styles, and pyramid sculptures, indicating the Feathered Serpent Pyramid was built around AD 200 as a symbol of militaristic royal authority [Sugiyama 1989, 2000]. Using these results, Sugiyama identifies the following two points as unresolved issues [Sugiyama 2000: 31];

The Feathered Serpent Pyramid was constructed around AD 200. This corresponds to the time when the basic structures of urban planning, observable today, were constructed, and probably when the state polity was established, and some long-distance exchanges began. However, buildings before the polity formation or its early stage, around the Patlachique and Tzacualli phases according to the ceramic-type chronology, have not been found.

The religious significance and functions of the Feathered Serpent Pyramid and the "Ciudadela" have been clarified; but the issues such as how these monuments related to other monuments and how these relations transformed, remain unanswered.

At the Sun Pyramid, the back (east) and north sides of the pyramid were excavated and restored by the INAH between 1990-92 [Matos 1995]. Unfortunately, materials about the temple presumed to have been on the pyramid top do not exist, and traces of burials or offerings have not been found inside the pyramid. Sugiyama argues the following points as issues of the Sun Pyramid. [Sugiyama 2000: 30]:

There are almost no materials indicating what the Sun Pyramid was dedicated to, how it functioned, or what symbolic form it had.

The monument, as currently observed, falls into the Tzacualli phase based on the ceramic chronology, but there is only one radiocarbon analysis sample for its absolute age (AD 1-150).,

It does not go beyond the realm of conjecture about how long the Sun Pyramid functioned because the scarcity of early buildings in Teotihuacan hampers the study to associate the ceramic phases to the buildings. This is a fundamental issue which needs to be reexamined.

As mentioned earlier, the Sun Pyramid, a principal monument of the city, was excavated and restored on all four sides, but the current interpretation of the fundamental issues, such as its architectural history, significance, and functions, is poorly-supported by data.

As explained, there are many issues regarding the monuments of Teotihuacan; however, the monument whose structure and functions are completely unknown is the Moon Pyramid .

2-2. Archaeological projects of the Moon Pyramid

Research of the Moon Pyramid was limited only to the project by Mexico's National Institute of Anthropology and History (INAH) in the 1960s; excavation and restoration of the entire area of the "Plaza of the Moon," and the surface excavation and restoration of the front and parts of the sides of the Moon Pyramid and the adjunct platform called Adosada. As a result, the Moon Pyramid was determined to be an early-Tlamimilolpa (AD 200-300) monument; however, no documentation has been found indicating that excavation was carried out inside the pyramid, or whether it took the present shape as a result of a one-time construction or after several restorations [Sugiyama 2000].

Excavation at the Moon Pyramid started in 1998 with the U.S. government's scientific research funds under the co-direction of Saburo Sugiyama of Aichi Prefectural University and Ruben Cabrera of Mexico's INAH. Since 2000, the Japanese government has granted scientific research subsidiaries. The purpose of this project was to historically restore the ancient city's origin and the formation mechanism of the complex society. In that sense, the Moon Pyramid, located in the center of the city, is the most appropriate structure for elucidating the origin of the city of Teotihuacan [Sugiyama 2000].

During the project, excavation of the Moon Pyramid through a tunnel dug inside the pyramid as well as surrounding structures and the "Plaza of the Moon" was carried out. The excavation through the inside tunnel revealed the pyramid had been rebuilt and expanded seven times.

Inside the pyramid, several sacrificial burials were found that were associated with each building. From Burial 2, associated with Building 4, a human skeleton with its hands tied from behind, and many offerings and sacrificed animals were found. Offerings include ceramic, jade products, earrings, beads, figures, obsidian products (arrowheads, ceremonial knives, stone blades, figures), shell products, and pyrite mirrors. Sacrificed animals include jaguars, pumas, wolves, snakes, eagles, and owls. These animals were depicted in the iconography of the Teotihuacan as symbols of the king's power and warriors. From Burial 6, below the top surface of the building, 12 sacrificial skeletons (of which 10 had no head) were found together with offerings and sacrificed animals [Sugiyama 2000, Sugiyama and López 2007].

From Burial 3, associated with Building 5, three human skeletons in an extended position and one in a flexed position were found. They are considered sacrificial bodies dedicated to the renovation of Building 5, because all four skeletons were buried with their hands tied behind their backs. Among the offerings of Burial 3 are obsidian products such as arrowheads, stone blades, and human figures, and shellfish products such as beads, pendants, and snails, and greenstone products such as beads, pendants, human figures, ear ornaments, and headdresses. These are considered ritualistic goods and ornaments [Sugiyama 2000, Sugiyama and López 2007].

Seventeen skull-only burials were found in Burial 4, associated with Building 6. The placement of the skulls indicated no clear pattern [Sugiyama and López 2007]. With respect to skull gender, 15 individuals out of 17 appear to be male, and two were unknown. Their ages ranged widely from 14 to 50 years old [Spence and Perira 2007]. In addition, an isotope analysis of the skulls points to the possibility that these individuals were from various regions other than Teotihuacan [White et. al. 2007]. From Burial 5 built on the floor of the top of Building 6, a sacrificial burial of three noble males, including one with a jade pendant worn by a noble Maya, was found. This was a significant finding that suggests a connection between the Teotihuacan and the Maya civilizations [Sugiyama and López 2007].

The author has been involved in the above project since 1999 and was responsible for analyzing the ceramic. As described above, the Moon Pyramid was rebuilt six times; therefore, ceramic excaveted from the earth filling of each building presents data that can be interpreted in association with the building.

3. Construction date of the Moon Pyramid

3-1. Chronology of the Teotihuacan

For the Teotihuacan time blocks, as shown in Table1, phases with some dating variation were proposed by Müller [Müller 1978], Smith [Smith 1987], Rattray [Rattray 2001], and Cowgill [Cowgill 2015] as well as various theories about the ceramic phases and their corresponding absolute years.

The tunnel excavation that began in 1998 confirmed that the Moon Pyramid was rebuilt in seven different phases. What's called the Moon Pyramid is the building constructed during the last seventh phase (Fig. 3).

The phase of each building in the Moon Pyramid is examined from the perspective of ceramic analysis. As the ceramics excavated from the building are usually from multiple phases, the phase is determined by examining the characteristics, the

Table 1: Teotihuacan Phases

	Muller 1978	Smith 1987	Rattray 2001	Cowgill 2015
Patlachique phase	150-100 B.C.	100-1 B.C.	150-1 B.C	100-1 B.C.
Early Tzacualli phase	100-1 B.C.	A.D. 1-100	(Early) A.D. 1-150 (Late)	A.D. 1-100
Late Tzaucualli phase	A.D. 1-150	A.D. 100-150		
Miccaotli phase	A.D. 150-200	A.D. 150-250	A.D. 150-200	A.D. 100-170
Early Tlamimilolpa phase	A.D. 200-300	A.D. 250-375	A.D. 200-250	A.D. 170-250
Late Tlamimilolpa phase	A.D. 300-450	A.D. 375-450	A.D. 250-350	A.D. 250-350
Early Xolalpan phase	A.D. 450-550	A.D. 450-650	A.D. 350-450	A.D. 350-450
Late Xolalpan phase	A.D. 550-650		A.D. 450-550	A.D. 450-550
Metepec phase	A.D. 650-750		A.D. 550-650	A.D. 550-650

(Source: Muller 1978, , Smith 1987, Rattray 2001, Cowgill 2015)

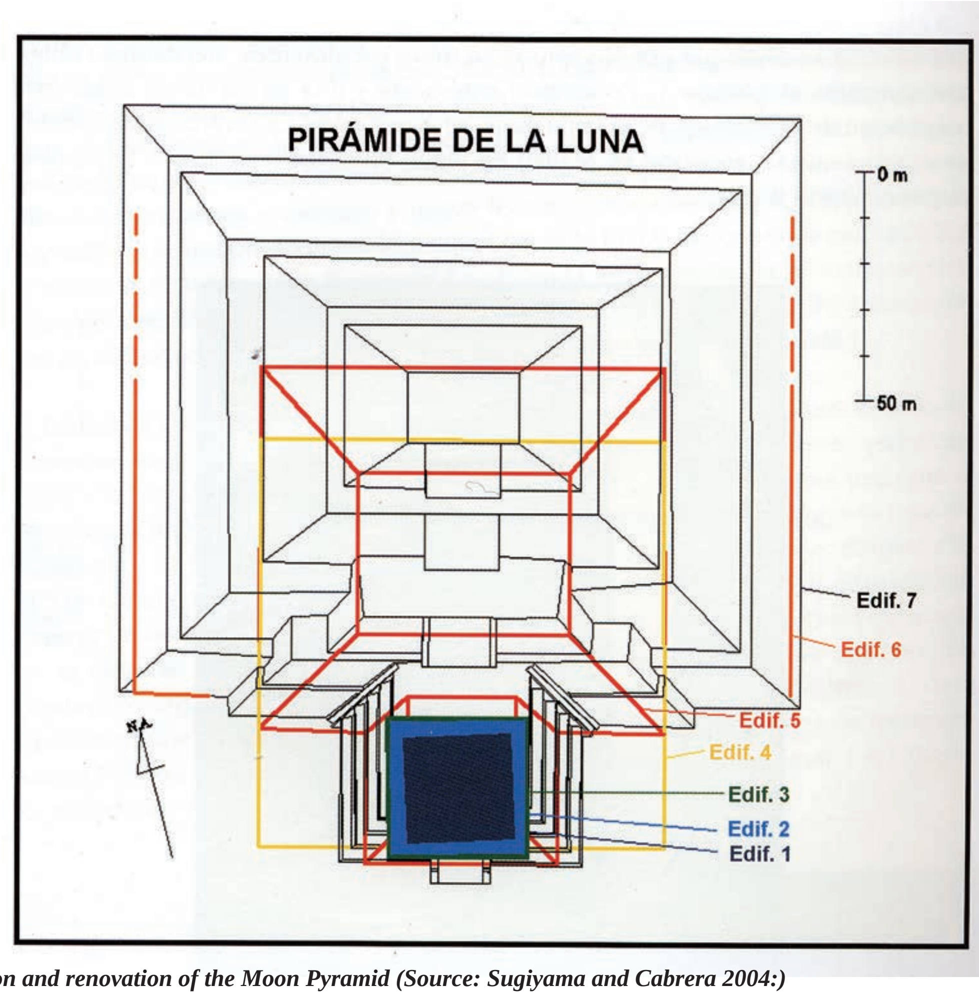

Fig. 3: Expansion and renovation of the Moon Pyramid (Source: Sugiyama and Cabrera 2004:)
(Note:Edif. 1 indicates Building 1, Edif. 2 indicates Building 2, Edif. 3 indicates Building 3, Edif. 4 indicates Building 4, Edif. 5 indicates Building 5, Edif. 6 indicates Building 6, and Edif. 7 indicates Building 7)

number of excavated pieces, and the radiocarbon date of the ceramics from the most recent phase. In addition, ceramic analytical data presented by Sugiyama et al. is used as comparative data[4] [Sugiyama and Cabrera 2007: Table 1 and Table 2].

3-2. Dating the buildings

(1) Stratum 56

This stratum appears to be a natural sedimentary layer immediately above the natural ground and on which Building 1 is located (Fig. 4).

Among the ceramics excavated from Stratum 56, which is the stratum directly above the natural ground, 88.7% are from the Patlachique phase and 8.8% from the Tzacualli phase (Table 2). Ceramics from the Patlachique phase (n=141) consist of Matte Ware (2.1%), Burnished Ware (51.8%), Polished Ware (22.0%), and Painted Ware (24.1%). This ratio is almost the

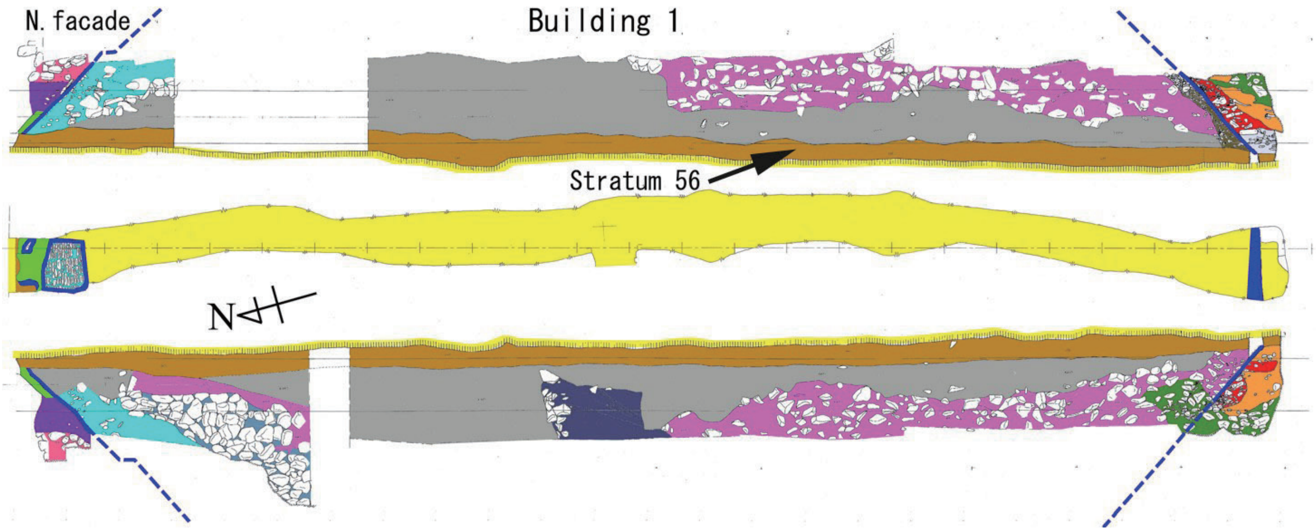

Fig.4: Stratum 56 (Provided by Dr. Saburo Sugiyama)

Table 2: Composition of ceramics excavated from Stratum 56 by phase

Stratum	Patlachique Phase (No. of Rims)		Tzacualli Phase (No. of Rims)		Miccaotli Phase (No. of Rims)		Tlamimilolpa Phase (No. of Rims)		Unidentified (No. of Rims)		Total (No. of Rims)	
Stratum 56 (T1)	98	90,7%	9	8,3%	0	0,0%	0	0,0%	1	0,9%	108	100,0%
Stratum 56 (T3)	13	100,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%	13	100,0%
Stratum 56 (T4)	29	78,4%	5	13,5%	0	0,0%	0	0,0%	3	8,1%	37	100,0%
Stratum 56 (T5)	1	100,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%	1	100,0%
Total	141	88,7%	14	8,8%	0	0,0%	0	0,0%	4	2,5%	159	100,0%

Note: Each excavation site is called “Tunnel” (henceforth, T) with its number attached to it (e,g., T1, T2, etc.)

same as that over the entire Patlachique phase.

On the other hand, all 14 ceramic sherds from the Tzacualli phase belong to the Burnished Ware(monochrome brown group), and are identified as olla, jars, bowls, and basins.

(2) Building 1

The composition ratio of ceramics excavated from Building 1, the oldest structure in the Moon Pyramid, by phase is 94.3% from the Patlachique phase and 4.3% from the Tzacualli phase, with no ceramics excavated from the Miccaotli or the Tlamimilolpa phases (Table 3). Ceramics from the Patlachique phase (n=197) consist of Matte Ware (1.0%), Burnished Ware (26.9%), Polished Ware (44.7%), and Painted Ware (27.5%). The ratio of Polished Ware is higher than that from the entire Patlachique phase.

The 9 ceramic sherds from the Tzacualli phase are Burnished Ware (ollas and jars), Matte Ware (miniature ceramic), Polished Ware (floreros), and Thin Orange Ware (bowls). Rattray reported that fine matte group miniature ceramics and Thin Orange Ware bowls appeared in the Tzacualli phase [Rattray 2001:125-127, 139-144],

In comparison, the ceramic analysis by Sugiyama et al. shows that 96.52% is from the Patlachique phase, 2.49% from the Tzacualli phase, 0.02% from the Miccaotli phase, and 0.46% from the early Tlamimilolpa phase. The radiocarbon dating indicates AD 100 ± 50 years [Sugiyama and Cabrera 2007: 116]. Although Cowgill suggests the possibility of Building 1 as a Patlachique structure [Cowgill 2015: 55, 83, Table 6.1], the author considers it to be an early Tzacualli phase structure. Building 1 was built on top of Stratum 56, the stratum directly above the natural ground. Therefore, soil from Stratum 56 must have been used for the fill. The composition ratio of the ceramics from Stratum 56 is 89.3% from the Patlachique phase, 8.8% from the Tzacualli phase, and none from the Miccaotli or the Tlamimilolpa phases. As the ceramics excavated from Stratum 56 and Building 1 are similar in terms of the composition ratio by phase, both Stratum 56 and Building 1 are considered to date to the Tzacualli phase.

Building 1 is the oldest among the buildings of the Moon Pyramid, and its east axis is shifted three degrees to the north from the common east and west axes of the Teotihuacan buildings [Sugiyama 2000]. Therefore, Building 1 is considered to be of an earlier date than the urban construction of Teotihuacan that is observed today.

(3) Building 2

The composition ratio of ceramics excavated from Building 2 is 67.2% from the Patlachique phase, 28.9% from the Tzacualli phase, and 3.4% from the Miccaotli phase (Table 4). Ceramics from the Patlachique phase (n=460) consist of Matte Ware

Table3: Composition of ceramics excavated from Building 1 by phase

Stratum	Patlachique Phase (No. of Rims)		Tzacualli Phase (No. of Rims)		Miccaotli Phase (No. of Rims)		Tlamimilolpa Phase (No. of Rims)		Unidentified (No. of Rims)		Total (No. of Rims)	
Stratum 56 Stratum 79,(T3)	107	97,3%	2	1,8%	0	0,0%	0	0,0%	1	0,9%	110	100,0%
Stratum 79, (T3)	47	92,2%	3	5,9%	0	0,0%	0	0,0%	1	2,0%	51	100,0%
Stratum 79 Stratum 80, (T3)	43	89,6%	4	8,3%	0	0,0%	0	0,0%	1	2,1%	48	100,0%
Total	197	94,3%	9	4,3%	0	0,0%	0	0,0%	3	1,4%	209	100,0%

Table 4: Composition of ceramics excavated from Building 2 by phase

Stratum	Patlachique Phase (No. of Rims)		Tzacualli Phase (No. of Rims)		Miccaotli Phase (No. of Rims)		Tlamimilolpa Phase (No. of Rims)		Unidentified (No. of Rims)		Total (No. of Rims)	
Stratum 52 (T1)	4	25,0%	11	68,8%	1	6,3%	0	0,0%	0	0,0%	16	100,0%
Stratum 52,53 (T1)	180	67,7%	75	28,2%	11	4,1%	0	0,0%	0	0,0%	266	100,0%
Stratum 52,53ab (T1)	57	65,5%	27	31,0%	1	1,1%	0	0,0%	2	2,3%	87	100,0%
Stratum 52,53,56 (T1)	44	73,3%	14	23,3%	2	3,3%	0	0,0%	0	0,0%	60	100,0%
Stratum 53 (T1)	20	74,1%	5	18,5%	2	7,4%	0	0,0%	0	0,0%	27	100,0%
Stratum 52,53,56 (T2)	19	86,4%	2	9,1%	1	4,5%	0	0,0%	0	0,0%	22	100,0%
Stratum 52,53,58,59 (T2)	6	85,7%	1	14,3%	0	0,0%	0	0,0%	0	0,0%	7	100,0%
Stratum 52,53 (T4)	96	64,0%	49	32,7%	3	2,0%	0	0,0%	2	1,3%	150	100,0%
Stratum 52,53,89 (T4)	34	68,0%	14	28,0%	2	4,0%	0	0,0%	0	0,0%	50	100,0%
Total	460	67,2%	198	28,9%	23	3,4%	0	0,0%	4	0,6%	685	100,0%

Table 5: Composition of ceramics excavated from Building 3 by phase

Stratum	Patlachique Phase (No. of Rims)		Tzacualli Phase (No. of Rims)		Miccaotli Phase (No. of Rims)		Tlamimilolpa Phase (No. of Rims)		Unidentified (No. of Rims)		Total (No. of Rims)	
Stratum 14a (T1)	5	20,8%	14	58,3%	5	20,8%	0	0,0%	0	0,0%	24	100,0%
Stratum 68 (T2)	3	23,1%	8	61,5%	0	0,0%	0	0,0%	2	15,4%	13	100,0%
Total	8	21,6%	22	59,5%	5	13,5%	0	0,0%	2	5,4%	37	100,0%

(0.2%), Burnished Ware (43.5%), Polished Ware (20.7%), and Painted Ware (34.5%). This ratio is similar to ceramics from the entire Patlachique phase.

Ceramics from the Tzacualli phase (n=198) consist of Matte Ware (2.0%), Burnished Ware (84.8%), Polished Ware (8.1%), Painted Ware (4.5%), Dense Ware (0.0%), Thin Orange Ware (0.0%), and Granular Ware (0.5%). The ratio of Burnished Ware is higher than that from the entire Tzacualli phase.

The ceramics from the Miccaotli phase (n=23) consist of Burnished Ware (4.3%) and Polished Ware (95.7%), with the majority of the Polished Ware being bowls. No ceramics from the Tlamimilolpa phase were excavated.

In comparison, the ceramic analysis by Sugiyama et al. shows that 36.75% is from the Patlachique phase, 54.57% from the Tzacualli phase, 8.46% from the Miccaotli phase, and none from the Tlamimilolpa phase or later. Radiocarbon dating indicates AD 150 ± 50 years[(Sugiyama and Cabrera 2007: 117]. Building 2 is considered to be an early Miccaotli phase structure.

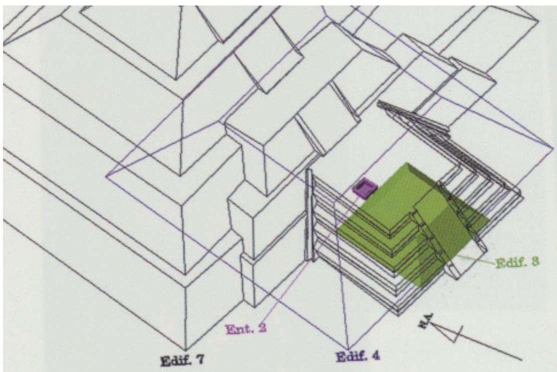

Fig. 5: Building 3 and Building 4
(Source: Sugiyama and Cabrera 2004:)

(4) Building 3

The composition ratio of the ceramics excavated from Building 3 is 21.6% from the Patlachique phase, 59.5% from the Tzacualli phase, and 13.5% from the Miccaotli phase (Table 5). Ceramics from the Patlachique phase (n=8) consist of Burnished Ware (62.5%), Polished Ware (25.0%), and Painted Ware (12.5%).

Ceramics from the Tzacualli phase (n = 22) consist of Matte Ware (4.5%), Burnished Ware (9.1%), Polished Ware (68.1%), Painted Ware (18.1%).

Ceramics from the Miccaotli phase (n = 5) consist of Burnished Ware (20.0%), Polished Ware (80.0%), and no ceramics from the Tlamimilolpa phase were excavated.

In comparison, the ceramic analysis by Sugiyama et al. is not reported due to the small number of ceramics excavated. The radiocarbon dating indicates AD 225 [Sugiyama and Cabrera 2007: 117]. The above suggests that Building 3 is an early Miccaotli phase structure.

Building 2 and Building 3 were constructed by expansion

Table 6: Composition of ceramics excavated from Building 4 (upper part) by phase

Stratum	Patlachique Phase (No. of Rims)		Tzacualli Phase (No. of Rims)		Miccaotli Phase (No. of Rims)		Tlamimilolpa Phase (No. of Rims)		Unidentified (No. of Rims)		Total (No. of Rims)	
Stratum 72 (T12)	5	6,5%	42	54,5%	30	39,0%	0	0,0%	0	0,0%	77	100,0%
Stratum 62 (T12)	3	5,0%	36	60,0%	21	35,0%	0	0,0%	0	0,0%	60	100,0%
Stratum 41 (T12)	22	14,1%	46	29,5%	88	56,4%	0	0,0%	0	0,0%	156	100,0%
Stratum 29 (T12)	12	6,9%	69	39,9%	91	52,6%	0	0,0%	1	0,6%	173	100,0%
Stratum 51,54(T12)	2	3,3%	31	50,8%	25	41,0%	0	0,0%	3	4,9%	61	100,0%
Total	44	8,3%	224	42,5%	255	48,4%	0	0,0%	4	0,8%	527	100,0%

Table 7: Composition of ceramics excavated from Building 4 (lower part) by phase

Stratum	Patlachique Phase (No. of Rims)		Tzacualli Phase (No. of Rims)		Miccaotli Phase (No. of Rims)		Tlamimilolpa Phase (No. of Rims)		Unidentified (No. of Rims)		Total (No. of Rims)	
Stratum 73 (T2)	0	0,0%	8	100,0%	0	0,0%	0	0,0%	0	0,0%	8	100,0%
Stratum 71a (T2)	0	0,0%	27	93,1%	1	3,4%	0	0,0%	1	3,4%	29	100,0%
Stratum 82 (T2)	0	0,0%	4	100,0%	0	0,0%	0	0,0%	0	0,0%	4	100,0%
Mixed Stratum (T2)	1	16,7%	5	83,3%	0	0,0%	0	0,0%	0	0,0%	6	100,0%
Stratum 149 (T2)	131	19,0%	551	79,9%	8	1,2%	0	0,0%	0	0,0%	690	100,0%
Stratum 142 (T2)	23	9,1%	201	79,1%	30	11,8%	0	0,0%	0	0,0%	254	100,0%
Total	155	15,6%	796	80,3%	39	3,9%	0	0,0%	1	0,1%	991	100,0%

Table 8: Composition of ceramics excavated from Building 5 by phase

Stratum	Patlachique Phase (No. of Rims)		Tzacualli Phase (No. of Rims)		Miccaotli Phase (No. of Rims)		Tlamimilolpa Phase (No. of Rims)		Unidentified (No. of Rims)		Total (No. of Rims)	
Stratum 248 (T2)	7	18,9%	27	73,0%	3	8,1%	0	0,0%	0	0,0%	37	100,0%
Stratum 254 (T2)	9	34,6%	16	61,5%	1	3,8%	0	0,0%	0	0,0%	26	100,0%
Stratum 251 (T2)	1	5,3%	12	63,2%	6	31,6%	0	0,0%	0	0,0%	19	100,0%
Stratum 254a (T2)	12	13,6%	49	55,7%	25	28,4%	2	2,3%	0	0,0%	88	100,0%
Stratum 247 (T2)	1	4,8%	11	52,4%	8	38,1%	1	4,8%	0	0,0%	21	100,0%
Stratum 247,248 (T2)	0	0,0%	12	66,7%	5	27,8%	1	5,6%	0	0,0%	18	100,0%
Stratum 257 (T2)	0	0,0%	1	100,0%	0	0,0%	0	0,0%	0	0,0%	1	100,0%
Stratum 258 (T2)	0	0,0%	4	66,7%	2	33,3%	0	0,0%	0	0,0%	6	100,0%
Stratum 260 (T2)	0	0,0%	1	100,0%	0	0,0%	0	0,0%	0	0,0%	1	100,0%
Stratum 252 (T2)	0	0,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%
Stratum 254, 255 (T2)	1	33,3%	2	66,7%	0	0,0%	0	0,0%	0	0,0%	3	100,0%
Stratum 254-257 (T2)	0	0,0%	2	100,0%	0	0,0%	0	0,0%	0	0,0%	2	100,0%
Mixed Stratum (T2)	0	0,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%	0	0,0%
Total	31	14,0%	137	61,7%	50	22,5%	4	1,8%	0	0,0%	222	100,0%

and reconstruction, thereby covering Building 1 (Fig. 5). Since these buildings are small, they are considered to pre-date the urban construction of Teotihuacan, along with Building 1.

(5) Building 4

In Building 4, ceramics were excavated from two tunnels: Tunnel 12 in the upper part of the building, and Tunnel 2 in the lower part of the building.

The composition ratio of the ceramics in the upper part is 8.3% from the Patlachique phase, 42.5% from the Tzacualli phase, and 48.4% from the Miccaotli phase. On the other hand, the composition ratio of ceramics in the lower part is 15.6% from the Patlachique phase, 80.3% from the Tzacualli phase, and 3.9% from the Miccaotli phase, showing a difference in the ratio between the upper and lower part of the building. No ceramics from the Tlamimilolpa phase were excavated from either upper or lower part (Table 6, Table 7).

Ceramics from the Patlachique phase (n=199, the total from upper and lower parts; and similarly below) consist of Matte Ware (0.5%), Burnished Ware (44.7%), Polished Ware (19.6%), and Painted Ware (35.2%). This ratio is similar to ceramics from the entire Patlachique phase.

Ceramics from the Tzacualli phase (n=1020) consist of Matte Ware (23.3%), Burnished Ware (29.1%), Polished Ware (31.6%), Painted Ware (14.0%), Dense Ware (1.8%), and Thin Orange Ware (0.3%). The ratio of Matte Ware is high because many fine mate group cover plates have been excavated from the lower part of Building 4.

Ceramics from the Miccaotli phase (n=294) consist of Matte Ware (3.0%), Burnished Ware (7.8%), Polished Ware (74.9%), Painted Ware (8.9%), Dense Ware (3.7%), and Thin Orange Ware (1.7%), showing a higher ratio of Polished Ware. The majority of Polished Ware are bowls.

In comparison, the ceramic analysis by Sugiyama et al. (Tunnel 2) shows that 7.21% is from the Patlachique phase, 86.61% from the Tzacualli phase, 1.82% from the Miccaotli phase, 0.01% from the early Tlamimilolpa phase, and none from the late Tlamimilolpa phase or later. The radiocarbon dating in-

Table 9: Composition of ceramics excavated from Building 6 (upper part) by phase

Stratum	Patlachique Phase (No. of Rims)		Tzacualli Phase (No. of Rims)		Miccaotli Phase (No. of Rims)		Tlamimilolpa Phase (No. of Rims)		Unidentified (No. of Rims)		Total (No. of Rims)	
Stratum 9 (T8E1)	4	10,3%	20	51,3%	11	28,2%	3	7,7%	1	2,6%	39	100,0%
Stratum 9 (T8N1)	32	10,9%	106	36,1%	99	33,7%	56	19,0%	1	0,3%	294	100,0%
Stratum 9,13 (T8N1)	14	7,7%	66	36,5%	60	33,1%	41	22,7%	0	0,0%	181	100,0%
Stratum 9 (T8E2)	11	10,1%	39	35,8%	38	34,9%	19	17,4%	2	1,8%	109	100,0%
Stratum 20,21 (T8E2)	5	13,9%	10	27,8%	10	27,8%	10	27,8%	1	2,8%	36	100,0%
Stratum 21 (T8E2)	3	5,2%	17	29,3%	30	51,7%	7	12,1%	1	1,7%	58	100,0%
Stratum 22,23 (T8E2)	4	4,4%	14	15,6%	34	37,8%	36	40,0%	2	2,2%	90	100,0%
Stratum 23 (T8E2)	7	7,1%	22	22,4%	26	26,5%	43	43,9%	0	0,0%	98	100,0%
Total	80	8,8%	294	32,5%	308	34,0%	215	23,8%	8	0,9%	905	100,0%

Table 10: Composition of ceramics excavated from Building 6 (lower part) by phase

Stratum	Patlachique Phase (No. of Rims)		Tzacualli Phase (No. of Rims)		Miccaotli Phase (No. of Rims)		Tlamimilolpa Phase (No. of Rims)		Unidentified (No. of Rims)		Total (No. of Rims)	
Stratum 280b (T2)	0	0,0%	17	20,2%	25	29,8%	41	48,8%	1	1,2%	84	100,0%
Stratum 284 (T2)	1	7,1%	5	35,7%	2	14,3%	6	42,9%	0	0,0%	14	100,0%
Total	1	1,0%	22	22,4%	27	27,6%	47	48,0%	1	1,0%	98	100,0%

dicates AD 250 ± 50 years [Sugiyama and Cabrera 2007: 120]. Although the radiocarbon date is later than the Miccaotli phase, Building 4 is still considered to be a Miccaotli phase structure based on the ceramic composition.

The scale of expansion and reconstruction of Building 4 was vastly different from that of the previous three buildings, at about nine times the base area (Fig.3). In addition, Burial 2 and Burial 6[5], serving as sacrificial burial sites, were discovered in this building [Sugiyama and López 2007]. The presence of offerings and sacrificial victims in these burial sites suggests that a funeral ritual was performed during the building's construction, and that there was an individual with sufficient power to command the ritual performance and provide goods for a ritual burial [Sugiyama and López 2007: 141].

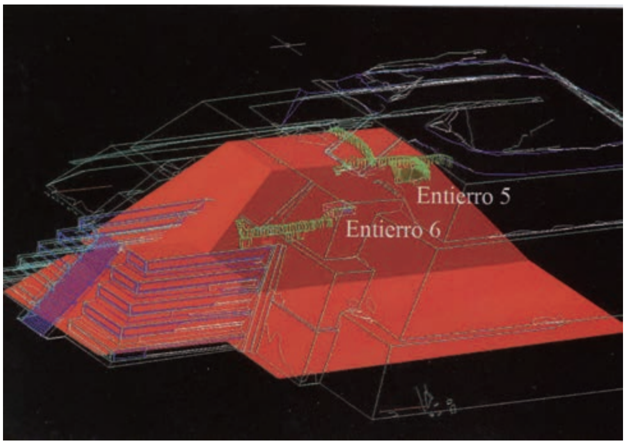

Fig. 6: Burial 5 and Burial 6 of the Moon Pyramid (Source: Sugiyama and Cabrera 2004:)

(6) Building 5

The composition ratio of ceramics in Building 5 is 14.0% from the Patlachique phase, 61.7% from the Tzacualli phase, 22.5% from the Miccaotli phase, and 1.8% from the Tlamimilolpa phase (Table 8). Ceramics from the Patlachique phase (n=31) consist of Burnished Ware (51.6%), Polished Ware (9.7%), and Painted Ware (38.7%).

Ceramics from the Tzacualli phase (n=137) consist of Matte Ware (1.5%), Burnished Ware (41.6%), Polished Ware (29.9%), Painted Ware (34.8%), and Dense Ware (2.2%). The ratio of Painted Ware is higher than that from the entire Tzacualli phase. Ceramics from the Miccaotli phase (n=50) consist of Matte Ware (2.0%), Burnished Ware (10.0%), Polished Ware (60.0%), Painted Ware (20.0%), Dense Ware (4.0%), and Thin Orange Ware (4.0%).

Ceramics from the Tlamimilolpa phase (n=4), which were excavated for the first time from the fill of Building 5, consist of one sherd each of Matte Ware, Burnished Ware, Polished Ware, and Dense Ware.

In comparison, the ceramic analysis by Sugiyama et al. (Tunnel 2) shows that 5.18% is from the Patlachique phase, 71.05% from the Tzacualli phase, 19.81% from the Miccaotli phase, 2.83% from the early Tlamimilolpa phase, and none from the late Tlamimilolpa phase or later. The radiocarbon date is AD 300 ± 50 years [Sugiyama and Cabrera 2007: 121]. The above suggests that Building 5 was constructed during the Tlamimilolpa phase.

The architectural style of Building 5 changed significantly. The adosada platform in the talud-tablero style was erected in the front of the building, giving it the same shape as the present Moon Pyramid. Burial 3, serving as a sacrificial burial site for this building, contained four human skeletons wearing noble burial accessories and with their hands tied behind their backs [Sugiyama and López 2007: 130-131].

Table 11: Composition of ceramics excavated from Building 7 by phase

Stratum	Patlachique Phase (No. of Rims)		Tzacualli Phase (No. of Rims)		Miccaotli Phase (No. of Rims)		Tlamimilolpa Phase (No. of Rims)		Unidentified (No. of Rims)		Total (No. of Rims)	
Stratum 22	4	2,3%	66	37,5%	60	34,1%	46	26,1%	0	0,0%	176	100,0%
Stratum 25	0	0,0%	8	18,2%	13	29,5%	22	50,0%	1	2,3%	44	100,0%
Stratum 26	0	0,0%	14	11,2%	32	25,6%	79	63,2%	0	0,0%	125	100,0%
Total	4	1,2%	88	25,5%	105	30,4%	147	42,6%	1	0,3%	345	100,0%

(7) Building 6

In Building 6, ceramics were excavated from two tunnels: Tunnel 8 in the upper part of the building, and Tunnel 2 in the lower part of the building.

The composition ratio of the ceramics excavated from the upper part is 8.8% from the Patlachique phase, 32.5% from the Tzacualli phase, 34.0% from the Miccaotli phase, and 23.8% from the Tlamimilolpa phase. On the other hand, the composition ratio of ceramics from the lower part is 1.0% from the Patlachique phase, 22.4% from the Tzacualli phase, 27.6% from the Miccaotli phase, and 48.0% from the Tlamimilolpa phase, showing a difference in the ratio between the upper and lower parts (Table 9, Table 10).

Ceramics from the Patlachique phase (n=81, the total from upper and lower parts; and similarly below) consist of Burnished Ware (37.0%), Polished Ware (2.4%), and Painted Ware (60.5%), with a higher ratio of Painted Ware.

Ceramics from the Tzacualli phase (n=316) consist of Matte Ware (1.6%), Burnished Ware (41.8%), Polished Ware (24.4%), Painted Ware (31.3%), and Dense Ware (0.9%)..

Ceramics from the Miccaotli phase (n=335) consist of Matte Ware (0.3%), Burnished Ware (17.0%), Polished Ware (69.9%), Painted Ware (7.5%), Dense Ware (3.9%), and Thin Orange Ware (1.5%), with a high ratio of Polished Ware. The majority of the Polished Ware are bowls.

Ceramics from the Tlamimilolpa phase (n=262) consist of Matte Ware (3.0%), Burnished Ware (1.9%), Polished Ware (72.5%), Painted Ware (5.8%), Dense Ware (14.5%), and Thin Orange Ware (2.3%), with a higher ratio of Polished Ware and Dense Ware.

In comparison, the ceramic analysis by Sugiyama et al. shows that 0.7% is from the Patlachique phase, 20.8% from the Tzacualli phase, 43.1% from the Miccaotli phase, and 31.4% from the early Tlamimilolpa phase [Sugiyama and Cabrera 2007: 121]. The radiocarbon date is AD 350 ± 50 years [Sugiyama and Cabrera 2007: 120]. The above suggests that Building 6 was constructed during the Tlamimilolpa phase.

Building 6 was constructed by expanding Building 5 (Fig. 3). Burial 4 was found in the lower part of the building, and Burial 5 was found directly under the building floor in the upper part (Fig.6). The ornaments worn by the individuals buried in Burial 5 suggest that they belonged to the Maya elite class [Sugiyama and López 2007: 132-138].

(8) Building 7

The composition ratio of the ceramics from Building 7 is 1.2% from the Patlachique phase, 25.5% from the Tzacualli phase, 30.4% from the Miccaotli phase, and 42.6% from the Tlamimilolpa phase. Ceramics from the Patlachique are rarely excavated (Table 11).

Ceramics from the Tzacualli phase (n=88) consist of Matte Ware (4.5%), Burnished Ware (34.1%), Polished Ware (20.5%), Painted Ware (27.3%), Dense Ware (1.1%), and Thin Orange Ware (12.5%).

Ceramics from the Miccaotli phase (n=105) consist of Matte Ware (2.9%), Burnished Ware (14.3%), Polished Ware (75.2%), and Painted Ware (7.7%), with a high ratio of Polished Ware.

Ceramics from the Tlamimilolpa phase (n=147) consist of Matte Ware (6.1%), Burnished Ware (2.0%), Polished Ware (79.6%), Painted Ware (7.4%), Dense Ware (4.1%), and Thin Orange Ware (0.7%), with a higher ration of Polished Ware.

In comparison, the ceramic analysis by Sugiyama et al. (Front C) shows that 0.3% is from the Patlachique phase, 18.37% from the Tzacualli phase, 41.49% from the Miccaotli phase, 33.97% from the early Tlamimilolpa phase, 0.13% from the late Tlamimilolpa phase, and 1.77% from the Xolalpan phase. The radiocarbon date is AD 450 ± 50 years [Sugiyama and Cabrera 2007: 120]. Sugiyama et al.'s data do not rule out the possibility that Building 7 dates to the Xolalpan phase. However, no ceramics from the Xolalpan phase were excavated in the author's analysis of Building 7 (Stratum 22, Stratum 25, and Stratum 26), and Building 7 should be interpreted as a structure from the Tlamimilolpa phase.

4. Relationship between the Moon Pyramid with other Monuments

Table 12 shows the current hypothesis of the relationship between each building of the Moon Pyramid and the Sun Pyramid and the Feathered Serpent Pyramid . The author examines its relationship with the other monuments based on previous studies

Table 12: Relationship between the buildings of the Moon Pyramid, the Sun Pyramid, and the Feathered Serpent Pyramid

Moon Pyramid	Phase (note1)	Moon Pyramid's Radiocarbon Date (note2)	Moon Pyramid's Burial	Sun Pyramid	Feathered Serpent Pyramid (Temple of Quetzalcoatl)	Remarks (note3)
Building 1	Tzacualli Phase (A.D. 1-150)	A.D. 100±50			pre-Ciudadela	(Moon)Small Scale
Building 2	Miccaotli Phase (A.D.150-200)	A.D. 150±50		Building 1		(Moon)Small Scale
Building 3	Miccaotli Phase (A.D.150-200)	A.D. 225			pre-FSP?	(Moon)Small Scale
Building 4	Miccaotli Phase (A.D.150-200)	A.D. 250±50	Burial 2	Construction of Sun Pyramid's Corpus?	Construction of Feathered Serpent Pyramid (Temple of Quetzalcoatl)	(Moon Pyramid)Bigger Scale(Major Reconstruction)
			Burial 6			(Feathered)Advent of Powerful Ruler (Sacrifices), Emergence of Talud-tablero Style
Building 5	Early Tlamimilolpa Phase (A.D. 200-250)	A.D. 300±50	Burial 3	Construction of Adosada, Expansion and Renovation of Sun Pyramid's Corpus?	Construction of Adosada	(Moon)Major Reconstruction, Emergence of Adosada in Talud-tablero Style
Building 6	Early Tlamimilolpa Phase (A.D. 200-250)	A.D. 350±50	Burial 4			Moon)Major Reconstruction
			Burial 5			(Moon) Mayan Sacrifices
Building 7	Early Tlamimilolpa Phase (A.D. 200-250)	A.D. 450±50				(Moon)Minor Reconstruction

Note1: Rattray's chronology (Rattray 2001).

Note2: Sugiyama and Cabrera 2007

Note3: (Moon) indicates Moon Pyramid;(Feathered) indicates Feathered Serpent Pyramid.

on Teotihuacan.

Patlachique phase

The Patlachique phase settlement area was concentrated in the northwestern part of the Teotihuacan Basin (Fig.7), and the population at the time is thought to have been about 19,000 [Cowgill 1974: 381-384].

Ceramics from the Patlachique phase were excavated from Stratum 56, which is considered to be natural sediment directly above the natural ground, in the central part of the basin where the Moon Pyramid is located. This suggests there was human activity in the central part of the basin, although no construction has been confirmed.

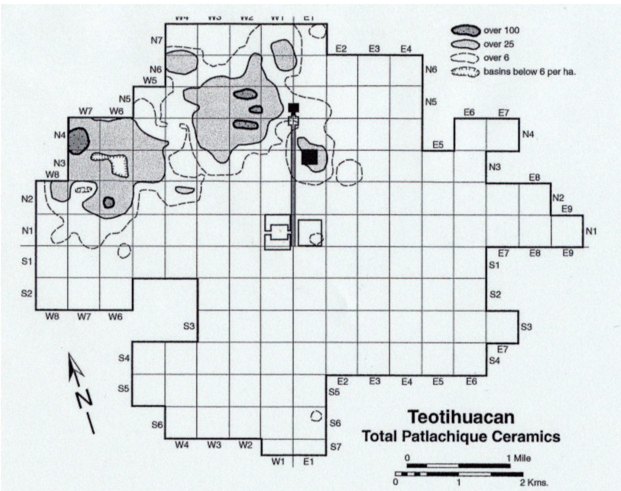

Fig. 7: Distribution of ceramics from the Patlachique phase (Source: Cowgill 2015: Fig.4.1, p.54)

Among ceramics from the Patlachique phase, many decoration techniques were used for Painted Ware, such as red-on-natural, polychrome, and negative decorations. It has been suggested that the ceramic culture with such techniques relates to the Cuicuilco archaeological site in the southern part of the Mexico basin.

Tzacualli phase

In the Tzacualli phase, the settlement area expanded, and ceramics from the Tzacualli phase are heavily distributed also in the Sun Pyramid and Ciudadela (Fig. 8). The estimated population at that time is at least 25,000 to 30,000 [Cowgill 1974: 383-385]. It is thought that the urban construction started during this time, including the Sun Pyramid.

However, the research on the Moon Pyramid does not necessarily support this theory. First, the building that belongs to the Tzacualli phase in the Moon Pyramid is Building 1. As mentioned earlier, it is reported that the east axis of Building 1 is skewed by 3 degrees to the north from the commonly known east-west axis of Teotihuacan buildings [Sugiyama 2000: 39]. According to the report on the pre-Ciudadela structure[6], its axis is unaligned from the reference axis of Teotihuacan, as is the case with Building 1. Therefore, these two structures are considered to predate the present urban construction. This means that in the Tzacualli phase, the center of Teotihuacan consisted of the small Building 1[7] of the Moon Pyramid to the north and the pre-Ciudadela structure to the south (Fig.9).

The Sun Pyramid may have been built at a later date than previously thought.[8] If this hypothesis is correct, a powerful ruler who could build a large monument had not yet emerged by the Tzacualli phase, and the society of the Patlachique phase continued to develop gradually and brought about population growth.
The ceramics inherited the tradition of the Patlachique phase, and although the pastes are different, there are many similarities in the rims and lips of the Burnished Ware's ollas. The pastes changed significantly for Polished Ware and Painted Ware, and red-on-natural, polychrome, and negative decorations were refined remarkably. The addition of Granular Ware and Thin Orange Ware, which are thought to have been brought from other regions, suggests an increased number of regions interacting, and the ceramic culture that had developed since the Patlachique phase reached its peak.

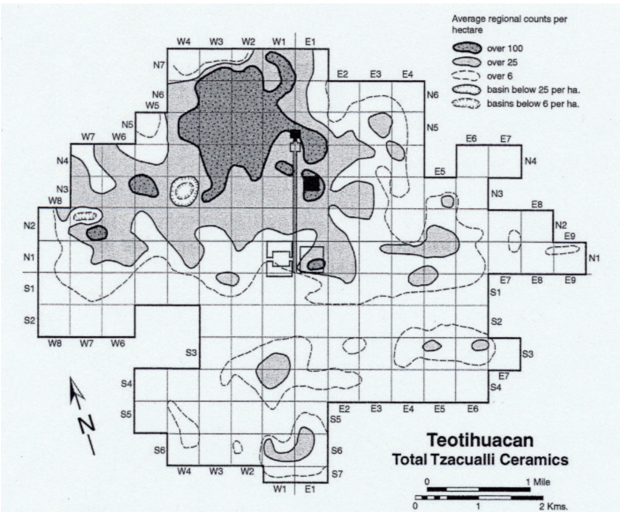

Fig.8: Distribution of ceramics from the Tzacualli phase (Source: Cowgill 2015: Fig.5.1, p.62)

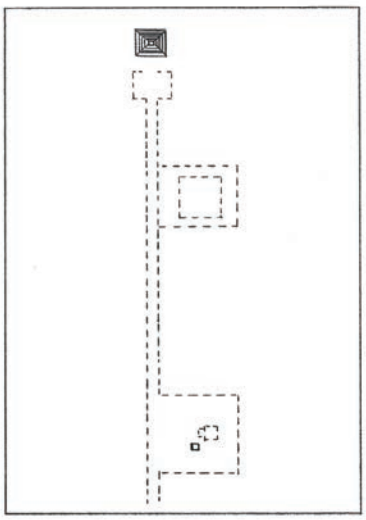

Fig. 9: Building 1 of the Moon Piramid and pre-Ciudadela in the Tzaculli phase (Conceptual figure)

Miccaotli phase

According to Cowgill, the distribution of the ceramics from the Miccaotli phase is similar to that of the Tzacualli phase, and covers an area of about 20 square kilometers throughout the Teotihuacan Basin (Fig. 10). The population is estimated to have been between 80,000 and 100,000 [Cowgill 2015: 79]. As for the construction in the central part of the basin, conventional theories suggest that the Ciudadela and the Feathered Serpent Pyramid (the Temple of Quetzalcoatl) were both built during this phase. The author examines this theory by analyzing data from recent studies about the Moon Pyramid.

First, in the Moon Pyramid, a small-scale expansion and reconstruction of Building 2 and Building 3 were carried out while covering Building 1. The orientation of these buildings gradually aligned to the reference axis of Teotihuacan. Structure 1 of the Sun Pyramid [Sugiyama, Nawa, Saburo Sugiyana, and Alejandro Sarabia G 2013] and the pre-FSP structure of the Feathered Serpent Pyramid are both contemporaneous with Building 2 and Building 3.

Next, a large-scale expansion and reconstruction took place to construct Building 4. This building is contemporaneous with the main corpus of the Sun Pyramid and that of the Feathered Serpent Pyramid. It is believed that the Avenue of the Dead was also built during this time, and the construction of Teotihuacan's central area was completed (Fig. 11). Although the construction date of the Sun Pyramid is hypothetical, at least the Feathered Serpent Pyramid and Building 4 of the Moon Pyramid are considered to be contemporaneous, and the size of these monuments and the presence of many sacrificial burial sites suggest the existence of an individual with strong power.

In the Miccaotli phase, political change took place in Teotihuacan, and, at the same time, the vibrance of the Tzacualli phase ceramics was lost. Polychrome and negative decorations of Painted Ware diminished, and many Polished Ware ceramics were appeared.

Tlamimilolpa phase

Building 5, Building 6, and Building 7 of the Moon Pyramid were constructed during the Tlamimilolpa phase. In Building 5, the adosada was built in the new architectural talud-tablero style. The adosada was built by scraping the south side of Building 4 and covering Building 1, Building 2, and Building 3. Then,

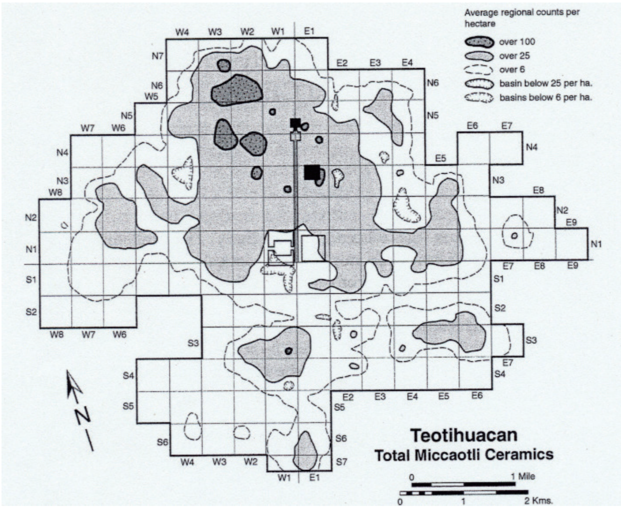

Fig. 10: Distribution of ceramics from the Miccaotli phase (Source: Cowgill 2015: Fig.6.1, p.80)

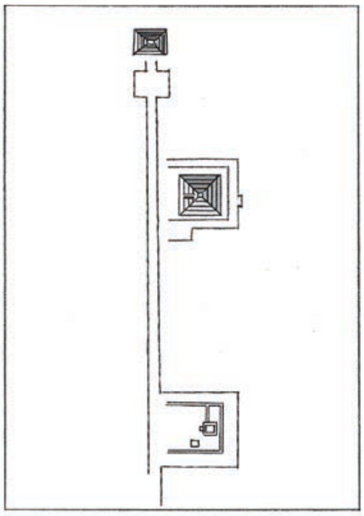

Fig.11: Building 4 of the Moon Piramid ,the Sun Piramid and Ciudadela, and the Feathered Serpent Pyramid in the Miccaotli phase (Conceptual figure)

Building 6 and Building 7 were constructed in the Moon Pyramid, following this architectural style. Adosadas were also built at the Sun Pyramid and the Feathered Serpent Pyramid (Fig. 12). In Burial 5 of Building 6, a jade pendant worn by a Mayan nobleman was found, suggesting the possibility that a nobleman related to Maya culture was sacrificed [Sugiyama and Lujan 2007].

In the central part of Teotihuacan, after the construction of Building 7 of the Moon Pyramid, there was no construction activity at these three monuments, but increasing numbers of apartment complexes were constructed along the Avenue of the Dead. The Tlamimilolpa phase ceramics excavated from the Moon Pyramid are characterized by the presence of many Polished Ware ceramics, as in the Miccaotli phase, and black cores in the paste due to firing imperfections. As no candeleros[9] or adornos (a decorative part of an incensario) have been excavated from the Moon Pyramid, both of these characterize the late Tlamimilolpa phase, the structures are considered to be dated to the early Tlamimilolpa phase.

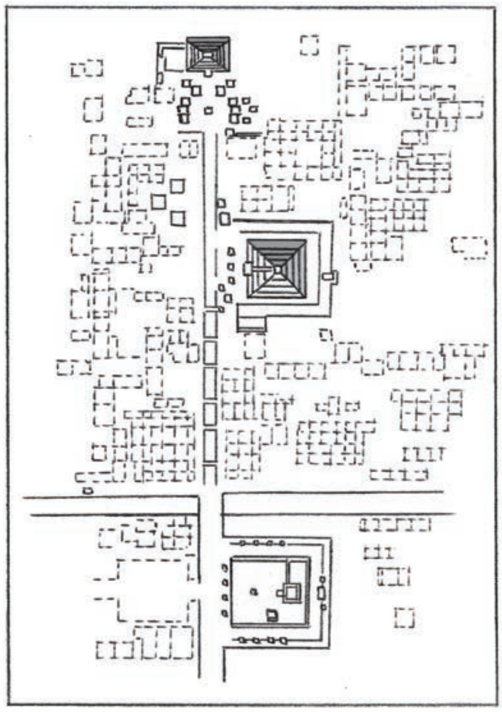

Fig. 12: Building 5,6,7 of the Moon Piramid ,the Sun Piramid and Ciudadela, and the Feathered Serpent Pyramid in the Tlamimilolpa phase (Conceptual figure)

Notes

1 This paper is a revision of a part of Sato's doctoral dissertation [Sato 2017].

2 According to the decoding of the Mayan script, an individual believed to have been one of the rulers of Teotihuacan, Siyah K'ak', "arrived" at Tikal, Guatemala in AD 378 and led a coup. Former Tikal ruler, Chak Tok Ich'aak, died in AD 378 and in AD 379, Yax Nuun Ayiin I was enthroned as the new king. On "Stela 31," Yax Nuun Ayiin I is depicted as a man dressed in a Teotihuacan-style costume. He's holding a shield and javelin with Tlaloc iconography on his hands [Schele and Freidel 1990, Martin and Grube 2000].

3 K'inich Yax K'uk' Mo' created the kingdom of Copan in Honduras, Central America, in AD 426. Researcher Robert J. Sharer discovered that the early monuments of the Copan dynasty had the Talud-tablero style structure of Teotihuacan. In addition, Teotihuacan ceramics were found among the offerings in the burials. From this it can be inferred that the first ruler of the Copan dynasty had a relationship with the

Teotihuacan [Sharer 2003].

4 Sugiyama et al. counted the total number of sherds, including body fragments, in their ceramic analysis and analyzed more strata than the author. The author counted only sherds from rims.

5 Burial 6 was initially thought to be a burial of Building 5 [Sugiyama and López 2007:14], but it is presently interpreted as a burial of Building 4.

6 Gazola reported on the pre-Ciudadela structure at a conference [Gazola 2012], but since this is not available, the author cites Cowgill's report [Cowgill 2015: 69].

7 Cowgill also considers Building 1 to be dated to the late Patlachique or early Tzacualli phase [Cowgill 2015: 55].

8 The Sun Pyramid Project (PPS), headed by Sarabia, was carried out from 2008 to 2011. During this project, the interior of the Sun Pyramid (Front C) and the subterranean “cave” beneath the Sun Pyramid (Front D) were re-examined, and three stages related to the construction of the Sun Pyramid were defined [Sugiyama et al. 2013]. The first stage pre-dates the Sun Pyramid as the small Structure 1, the second stage is the main corpus of the Sun Pyramid, and the third stage was the addition of the adosada platform to the front of the Sun Pyramid.

9 A candelero is a portable incense burner or lamp. The size is about 5 cm in height, 2 cm in width, and 5 to 6 cm in length, with two types of vessel shapes: one type has a single burner, and the other type has two.

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