The Pyramid of the Niches at El Tajín: A Re-Interpretation

ABSTRACT. -- The Pyramid of the Niches at El Tajín, near the northern edge of the Mesoamerican cultural realm, was most probably built as a device for measuring the cycles of the sacred 260-day calendar, rather than the tropical year as previously assumed. Both the number (346) and placement of the niches support such a hypothesis.

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With the exception of Tamuín (latitude 22º N.), El Tajín -- located at 20º 30' N. latitude in the north-central part of the Mexican state of Veracruz -- is the northernmost major site in the Mesoamerican cultural realm. Its most imposing building is the so-called Pyramid of the Niches, an architecturally unique structure that is thought to have had significance as a means of measuring time. For example, Gendrop (1) makes the following statement: "One of the most characteristic buildings of this ceremonial center is the harmonious "Pyramid of the Niches" whose numerous niches add up to 364, undoubtedly symbolizing the days of the solar year." However, careful inspection of the pyramid reveals that the actual number of niches on the reconstructed building would total only 346. (In this connection, it is interesting to note that the model of the pyramid that is on display in the National Museum of Anthropology in Mexico City is inaccurate in that several additional niches have been inserted on the rear (western) face.) Due both to the number and placement of the niches, I would argue instead that the distinctive El Tajín pyramid served as a device for keeping track of each of the four component cycles of the sacred 260-day Mesoamerican calendar (2), and not the solar year as Gendrop and others contend.

Bisecting the front, or eastern, face of the pyramid is a staircase into which 13 niches have been set. These, I would suggest, represent the 13 numbered days of the sacred calendar. They are arranged in four groups of three and one group of one, each group being separated from that above and below it by 13 steps. Thus, both architectural symmetry and religious symbolism have been effectively combined in the imposing stairway that leads to the top of this edifice. (Figure l.)

The most severely damaged niches are those that surmount the top platform of the pyramid. They are best preserved on the west side where it is clear that only 5 niches are to be found. The demands of symmetry require that 5 niches be located on each of the three remaining sides, for a total of 20. This, of course, was the number of named days in each ‘month’ of both the sacred and secular calendars. Thus, the two key elements of the 260-day calendar -- the 13 day-numbers and the 20 day-names -- are to be found represented by the niches on the staircase and top platform of the pyramid.

Although Thompson (3) rejects the thesis that the sacred 260-day calendar had any solar significance, especially since the interval between zenithal sun positions at the northern periphery of the Mesoamerican cultural realm is as much as 311 days, the Pyramid of the Niches strongly suggests that he is in error. Arrayed in front of the pyramid and near its northeastern and southeastern corners are 13 massive blocks of

stone, each with a hole cut into it as if to receive a pillar or post. (Figure 2.) Twelve of the blocks are clearly in evidence, whereas the southeasternmost block has apparently not yet been excavated. Nevertheless, the logic of the builders, together with the symmetry of the structure, would have demanded its positioning at the same angle from that corner of the building as its counterpart block occupies at the northeastern corner. It is apparent from the symmetry of the blocks' arrangement that posts set into them marked sun positions which fixed critical points in the solar year. Inasmuch as the block immediately in front (due east) of the staircase marked the equinoctial positions of the sun and those at the northeastern and southeastern corners marked its solsticial positions (being located about 25º N. and S. of the center of the platform at the top of the pyramid), it is apparent that this, arrangement of blocks and posts was intended to help keep the 260- and 365-aay calendars in phase with each other.

Keeping the two calendars calibrated with one another on an 'annual' basis was difficult enough, but unless it could be done accurately over a 52-year period (the lowest common denominator of the two calendars is 18,980 days, which corresponds to 73 rounds of the 260-day sacred calendar and 52 rounds of the 365-day secular calendar), no common starting-point could be established for the two systems of reckoning time. I would argue that it was for this purpose that the niches bracketing the staircase on the front, or eastern, face were intended. In the six tiers of niches of which the pyramid is composed, there are 8 on each side of the staircase in the bottom row, 6 on each side in the second row, 5 on each side in the third row, 4 on each side in the fourth row, 2 on each side in the fifth row, and 1 on each side of the sixth, or top, row. Thus, altogether there are 26 niches on each side of the front staircase, for a grand total of 52 -- the third of the component cycles of the sacred calendar. (Figure 1.)

The remaining three sides of the pyramid, that is the north, west, and south, are identical in design. On each of the successive tiers there is a decrease of 3 niches so that perfect symmetry is again maintained. The bottom tier contains 22 niches, the second 19, the third 16, the fourth 13, the fifth 10, and the sixth 7, making a total of 87 niches on each side. (Figure 3.) When the niches on all three sides are added together, they yield a grand total of 261 -- only 1 more than the number of days in the sacred calendar. Obviously, because 260 is not be equally divisible by three, the demand for structural symmetry took precedence over the sacred number in this instance. Nevertheless, that 260 was the key value to be calibrated should, of course, be apparent, for if all the niches on the entire structure are summed up (13 on the staircase, 20 on the top platform, 52 on the front, and 261 on the remaining three sides) they total only 346. Only through the most fanciful reconstruction of the pyramid could an additional 18 niches be added to bring the total to 364, as postulated by Gendrop and others.

In this connection it should be pointed out that the argument for 364 or 365 niches stems from the fact that several niches were reportedly discovered beneath the staircase during the restoration of the pyramid, suggesting that the latter had been added later. On the other hand, several of the niches adjacent to the staircase give the impression of having been 'squeezed' in order to fit them in, suggesting that it was necessary for the builders to retain a given number of niches rather than to simply superimpose a staircase

on the eastern face of the pyramid. Proponents of the 365-niche thesis argue that all four sides of the pyramid originally were identical, each having 87 niches for a grand total of 348 and that the remaining 17 were found on the top platform -- five to a side on the south, west, and north with two facing east. However, whether there are additional niches beneath the staircase or not, the fact remains that once the staircase was built (or added later, if it was), the pyramid could *only* have functioned as a counter for the cycles of the sacred year as postulated above. Therefore, one is obliged to postulate either a 365-niche pyramid that *did not function* as a counter for the *solar* year or a 346-niche pyramid that *did function* as a counter for the *sacred* year.

I would suggest that the computational use of the pyramid was accomplished through the daily movement of three 'counters' from one niche to another. These counters may well have been small idols or figurines of the gods for whom the respective days were named. On the first day of the given 260-day cycle, a counter would be placed in the first of the 13 niches on the staircase, another in the first of the 20 niches on the top platform, and a third in the first of the 260 niches of the main pyramid. With each succeeding day, the counters would be exchanged or moved into the following niche. When each counter had reached the final niche in its respective series, a cycle would have been completed and the following day the cycle would start over again in the beginning niche. Each time a solar year had been completed, (as measured by the interval between summer or winter solstices) a counter would be moved into one of the 52 niches at the front of the pyramid, and each time the counter reached the final niche in this series, a new "century" would begin. Thus, to the Totonac priests who designed this imposing structure, it was not only an esthetic masterpiece but a precision instrument of fundamental importance to their understanding of the ceaseless passage of time.

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References

1. P. Gendrop, Ancient Mexico (Editorial Trillas, Mexico City, 1972), p. 69.

2. V.H.Malmstrom, Science, 181, p. 939-941 (1973).

3. J.E.S.Thompson, Maya Hieroglyphic Writing: An Introduction (Univ. of Oklahoma Press, Norman, 1960), p. 98.

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- CAPTIONS FOR FIGURES -

Figure 1. The front, or eastern, face of the Pyramid of the Niches showing the 13 niches set into the central staircase and the 52 niches that bracket the staircase. The former are thought to represent the 13-day names of the sacred calendar and the latter, the 52-years of the Calendar Round.

Figure 2. Great stone blocks, carved to receive a post and positioned symmetrically along the front of the pyramid, appear to have been intended to keep the 260- and 365-day calendars in phase with each other, as well as to mark the beginning of each of the 13 ’months’ of the sacred year.

Figure 3. The south face of the pyramid, together with both the north and west faces, each contain 87 niches, making a total of 261. When the 65 niches on the east face and the 20 on the top platform are added, the grand total comes to 346 -- a number considerably shy of the 365 needed to correlate the structure with the solar year.

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