

## FROM TEOTIHUACAN TO TENOCHTITLAN: THE EARLY PERIOD REVISITED

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*Blanton's use of a hypothesis of warfare among Early Post-Teotihuacán sociocultural entities of the Basin of Mexico to account for selective reoccupation following the end of Teotihuacán is based ultimately on a conceptualization of a dichotomy between a peaceful Classic period and a warlike Postclassic period. Except for unoccupied areas between local concentrations of Early Toltec sites there are no data to support the warfare hypothesis. Through a presentation of available Early Toltec settlement pattern data from the Basin of Mexico and a consideration of the sociocultural connections between Teotihuacán and the Early Toltec epi-Teotihuacán states, I support my earlier model which utilizes a tightly reasoned cultural ecological (sociocultural factors plus environmental features) framework to account for and predict the locations of concentrations of Early Toltec period sites. Continuity between Teotihuacán and the Early Toltec period sites is stressed.*

### AN OVERVIEW

The Early Post-Teotihuacán settlement patterns and their interpretations fall within the general framework of archaeological research in the Basin of Mexico. I have indicated elsewhere (1972a, 1973a) that the period which begins with the end of Teotihuacán and continues to the extension of Mexica Aztec hegemony over the Basin of Mexico is emerging as one of extreme sociocultural complexity, with great lacunae in the archaeological record. This is the traditional "Toltec" period of Central Mexico. Millon's research at Teotihuacán (1970), Diehl's studies at Tula (1973) and my consideration of the Aztec/Colonial sequence (1972a, 1972b, 1973a) have delineated a "Toltec" period beginning much earlier and terminating much later than previously suggested. The problem of the Classic/Postclassic transition has become the problem of the Teotihuacán/Early Toltec transition.

Unfortunately many of the earlier conceptions of the sociocultural nature of this change, based on the archaeology of the Classic Maya and the historically known Central Mexican cultures, and involving a shift from a peaceful Classic to a warlike Postclassic, still cling to current renditions of the transition. Such interpretations of the Early Toltec period ascribe warfare between states to the period on the basis of very limited archaeological data.

Sanders (1965), Parsons (1970), and Blanton (1972a, 1972b, 1974) interpret Early Toltec settlement patterns and ceramics in parts of the Basin of Mexico on the basis of an analogy with the known warlike Late Aztec period. Their emphasis is on the discontinuity between the Teotihuacán and Post-Teotihuacán

periods. In my comment (1973b) on Parsons' article (1970) I suggested, as he had elsewhere (1969) that the emphasis should be on the continuity between Teotihuacán and the Early Toltec period, particularly in the underlying principles and processes of settlement pattern formation.

Therein lies the crux of the matter at hand. I emphasize the *continuity* of operation of basic principles of settlement pattern formation; Blanton stresses the *discontinuity*. I advance a hypothesis combining the continued operation of such settlement pattern principles with a preference for certain ecological features during the Early Toltec period, accounting for a selective *reoccupation* of the Basin of Mexico following the fall of Teotihuacán and the absorption of local Teotihuacán population into those areas reoccupied; Blanton suggests a single factor hypothesis of warfare to account for a selective *abandonment* of areas not reoccupied as local foci of Early Toltec period sociocultural units (states?). My emphasis begins with the Teotihuacán period and looks to the future, the Early Toltec period, as one with significant aspects of sociocultural continuity; Blanton begins with the conflict-laden Late Aztec period and projects it to the Early Toltec period, postulating a basic discontinuity with the preceding Teotihuacán period. It is a dim echo of the "peaceful Classic-warlike Postclassic" dichotomy.

### HYPOTHESES, MODELS, AND DATA: A COMMENTARY

Blanton's resurrection of a conflict model, involving "shatter-zones" and "abandoned contested land" to account for the selective

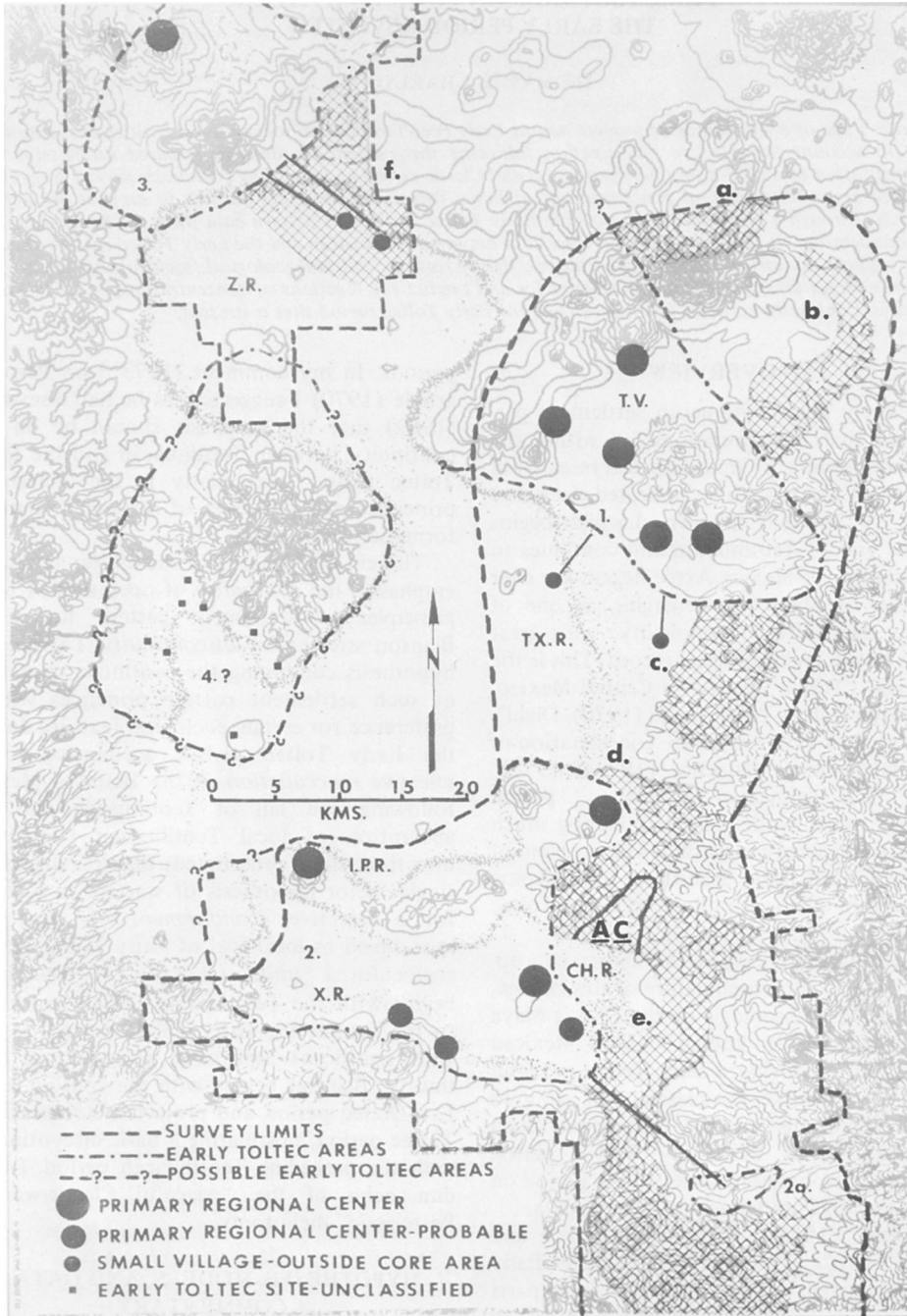


Fig. 1. Early Post-Teotihuacan settlement concentrations within the Basin of Mexico. Survey Regions: Z.R. Zumpango Region (Parsons 1974), T.V. Teotihuacan Valley (Sanders 1965), TX.R. Texcoco Region (Parsons 1971a), I.P.R. Ixtapalapa Peninsula Region (Blanton 1972b), CH.R. Chalco Region (Parsons 1971b), X.R. Xochimilco Region (Parsons 1973). Early Toltec Sites-Unclassified after Rattray (1966, Map I). Cross-hatched areas a-f indicate former Teotihuacan occupation abandoned during or at the end of the Teotihuacan period. AC. Acuahtla Plain (Blanton 1972b). Base map after Gibson (1964:3).

distribution of Early Toltec settlements within the Basin of Mexico (Fig. 1, Areas 1, 2, 3, and 4) derives from an *a priori* characterization of the Classic and Postclassic. Except for the unoccupied areas between settlement concentrations (e.g., Fig. 1, between Areas 1 and 2) there are no archaeological data supporting hypotheses and models of interstate conflict and warfare (Charlton 1973b:412, 415). A utilization of the unoccupied regions as data to support the conflict model which explains the unoccupied areas is of limited value.

Prior to March 1972, the available settlement pattern data for the Basin of Mexico included the Teotihuacán valley and the Texcoco region. Although based initially on those data, the hypotheses and model I suggested for the Early Toltec period are quite clearly predictive and applicable to data from other surveys in the Basin of Mexico. The major hypotheses include the following:

1. *Population redistribution.* Following the end of Teotihuacán, population formerly concentrated in that area was redistributed throughout the Basin of Mexico (see Fig. 1, Areas 1, 2, 3, and 4). This resulted in population increases over the Teotihuacán period in all regions except the Teotihuacán valley where there was a decrease. There is, however, no evidence indicating a high population pressure in any area. I am taking into account the relative nature of the concept *population pressure vis-à-vis* agricultural technology and the environment and avoiding a simple 1:1 correlation between population size and population pressure as suggested by Blanton.

2. *The environments of Early Toltec population areas.* The Teotihuacán derived populations and sociocultural units (epi-Teotihuacán states?) are consistently located in association with specific environmental features (deep soil cover, good drainage, a high water table, steep hills, gently sloping land, and lakeshore) occurring in close association. Following Parsons (1969:37) I have suggested that these features reflect the best *naturally* productive agricultural land, given the climate and agricultural technology of the period (Charlton 1973b:419).

The areas occupied (Fig. 1, Areas 1, 2, 3, and 4) consistently reflect these characteristics. The areas not occupied or abandoned, consistently lack one or more of the defined

environmental criteria (Fig. 1, e.g., previously occupied areas a-f). The major underlying criterion, on the basis of the recent settlement pattern data, appears to be security in freshwater supply, presumably for agricultural use. This was assured in Area 1 through permanent and floodwater irrigation, in Area 2 through floodwater irrigation and possible utilization of lacustrine water resources, in Area 3 through permanent irrigation and floodwater irrigation and possibly some lacustrine water resources, and in Area 4 (tentatively defined) through permanent and floodwater irrigation.

3. *The environments of the unoccupied areas.* Those regions, with some prior Teotihuacán occupation but no Early Toltec occupation on the eastern side of the Basin of Mexico, form a relatively unified area (see Fig. 1, a-e). They are regions lacking one or more of the criteria for Early Toltec occupation (e.g., a and b have no lakeshore; c, d, e have zones widely separated). Early Toltec occupation is oriented toward environments with particular topographic features and secure water resources, both criteria being related to agricultural use of the regions. The zones (Fig. 1, a-e) of the eastern Basin of Mexico lack those characteristics which would make them optimal agricultural areas for the Early Toltec period.

The Acuahtla plain (see Fig. 1) is one small section of the unoccupied eastern Basin of Mexico. It is an optimal agricultural area for the Late Aztec, Colonial and Republican periods, but lacks characteristics necessary for optimal Early Toltec agriculture. Such optimal zones are relative to the available and applicable agricultural techniques. They are not absolute (cf. Ferdon 1959). The abandoned area (Fig. 1, f) in the Zumpango region lacks immediately adjacent steep slopes.

4. *The sequence and process of population nucleation and the abandonment of Early Toltec unoccupied areas.* The pattern of areal depopulation began in most areas during the Early Teotihuacán period (Charlton 1965; Sanders 1965; Parsons 1968; Blanton 1972a, 1972b). I emphasize in my model that the Early Toltec settlement pattern results from a long tradition of such population centralization, with abandoned areas appearing at the end of the Formative, during the Early and Late Teotihuacán period and in the Early Toltec period. The operation of a principle of population nucleation by a local sociopolitical unit

with particular environmental preferences results in the settlement configuration of the Early Toltec period. Each of the areas (Fig. 1, a-f) has its own local sequence of abandonment. Data now available indicate no single abandonment concurrent with the establishment of local epi-Teotihuacán states in the Early Toltec period. At that time large sections were already unoccupied (e.g., Fig. 1, a, d). Those with remaining populations (e.g., Fig. 1, b, c, f) were abandoned at that time. (No detailed Teotihuacán data are available for Fig. 1, e.)

### CONCLUSION

Blanton (1972a, 1972b, 1974) and I (1973b, written between November 1970 and November 1971) have developed independently, but from many of the same data, an interpretation of the Early Toltec settlement patterns of the Basin of Mexico which hypothesizes the formation of small sociocultural units subsequently incorporated into the expanding sphere of Tula. We vary in our thoughts on the factors controlling the selective occupation of the Basin of Mexico at this time. Blanton emphasizes warfare as a factor resulting in unoccupied zones between the sociocultural units, and reflecting the old Classic/Postclassic dichotomy. I, rather than use a single factor (warfare) explanation of the settlement patterns, have suggested a model combining several hypotheses, and emphasizing a positive policy of selection of particular environments for reoccupation and a nucleation of population into the new local sociocultural units following well established Teotihuacán period precedents. These are Teotihuacán writ small with all the attendant emphases on dependable water supplies for agriculture.

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## TRACE ELEMENT ANALYSES OF ARCHAEOLOGICAL MATERIALS

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*Numerous reports of trace element analyses contain defects which severely limit their utility. These defects are, on the whole, inexcusable and serve only to hamper the comparison and replication of such studies by other researchers.*

Analyses of minor and trace element content of artifacts are usually done to aid in the identification of raw material sources and the correlation of archaeological material to its parent geological source(s). Although many such studies provide important and valuable data, others are useless. These latter reports are flawed by four broad categories of defects, any or all of which may be present at one time: (1) lack of raw data, (2) lack of analytical parameters, (3) lack of quantitative results, and (4) insufficient or faulty comparative analysis.

It is essential to publish raw data. Without it, the examination, evaluation, and manipulation of a particular data set by other researchers are impossible. Additionally, because of the heterogeneity of most archaeological materials, the range of each element concentration, as well as the mean, should be given. Without such data, different studies may report different means—and consider them significantly so—when, in actuality, the values may lie within the same sample range. It almost goes without saying, that comparison of data based on means is less precise than comparison based on ranges.

Analytical parameters are another set of data that is frequently omitted from trace element studies. It is sometimes difficult even to determine the analytical technique utilized. Such data may be critical to the interpretation of the results and its omission prevents replication by other researchers. Since relatively few words are required to present the necessary data, there is no reason for its exclusion.

The presentation of either raw data or results in non-quantitative units, e.g., number of counts, ratios, or presence/absence, rather than in quantitative units such as percent or ppm, can only have an adverse effect on another researcher's ability to compare or replicate a particular study. While non-quantitative data may result from the utilization of an unsuitable or insensitive analytical technique, this only emphasizes that (1) a different technique should have been utilized, or (2) the study should not have been done. Of the four categories of defects mentioned previously, this is perhaps the most critical; the lack of quantitative data may render a study almost useless for further research. Naturally,

Table 1. Defects present in trace element analysis reports.

Defect	Number of Reports	Percent of Reports
Lack of Raw Data	161	82
Lack of Analytical Parameters	120	61
Lack of Quantitative Results	58	29
All of the Above	43	22
Insufficient Comparative Analysis*	47	53

\*N=88 (not all reports deal with archaeological/geological correlations)