Grove, David C.

1968 Chalcatzingo, Morelos, Mexico: a reappraisal of the Olmec rock carvings. *American Antiquity* 33:486-491.

1970 Los murales de la Cueva de Oxtotitlan, Acatlan, Guerrero. *Instituto Nacional de Antro*pologia e Historia, *Investigaciones* 23.

Jimenez Moreno, Wigberto

1966 Mesoamerica before the Toltecs. In Ancient Oaxaca, edited by John Paddock, pp. 3-81. Stanford University Press, Stanford.

Kidder, A. V.

1947 The artifacts of Uaxactun, Guatemala.

Carnegie Institution of Washington, Publication
576

Kidder, A. V., J. D. Jennings, and E. M. Shook

1946 Excavations at Kaminaljuyu, Guatemala. Carnegie Institution of Washington, Publication 561.

Kubler, George

1967 The iconography of the art of Teotihuacan. Studies in Pre-Columbian Art and Archaeology, Number 4.

Miles, S. W.

1965 Sculpture of the Guatemala-Chiapas highlands and Pacific slopes, and associated hieroglyphs. *Handbook of Middle American Indians*, Vol. 2, part 1, edited by Robert Wauchope and Gordon R. Willey, pp. 237-275. University of Texas Press, Austin.

Millon, Rene

1967 Teotihuacan. Scientific American 216:38-48.

Proskouriakoff, Tatiana

1950 A study of Classic Maya sculpture. Carnegie Institution of Washington, Publication 593.

Séjourné, Laurette

1959 Un palacio en la Ciudad de los Dioses. Instituto Nacional de Antropologia e Historia, Mexico City.

1962 El universo de Quetzalcoatl. Fondo de Cultura Economica, Mexico City.

1966a Arquitectura y pintura en Teotihuacan. Siglo xxi Editores, Mexico City.

1966b Arqueologia de Teotihuacan: la ceramica. Fondo de Cultura Economica, Mexico City.

Stirling, Matthew W.

1955 Stone monuments of the Rio Chiquito, Veracruz, Mexico. Bureau of American Ethnology, Bulletin 157:1-24.

Thompson, J. Eric S.

1948 An archaeological reconnaissance in the Cotzumalhuapa region, Escuintla, Guatemala. Carnegie Institution of Washington, Contributions to American Anthropology and History 44.

Tolstoy, Paul

1958 Surface survey of the northern Valley of Mexico: the Classic and Post-Classic periods. Transactions of The American Philosophical Society N.S. Vol. 48, part 5.

1971 Utilitarian artifacts of central Mexico. Handbook of Middle American Indians, Vol. 10, part 1, edited by Robert Wauchope, Gordon F. Ekholm, and Ignacio Bernal, pp. 270-296. University of Texas Press, Austin. von Winning, Hasso

1947 A symbol for dripping water in the Teotihuacan culture. *El Mexico Antiquo* 6:333-341.

THE LIFE STYLE OF EL TAJIN

PAULA H. KROTSER G. R. KROTSER

ABSTRACT

Invited by José García Payón of the Instituto Nacional de Antropología e Historia to map the central part of El Tajin and to excavate stratigraphic pits for a ceramic sequence, the authors were able also to make considerable progress toward understanding the settlement pattern of this large site. Based on surface survey, intimate knowledge of the mapped area, and the excavations, it is proposed that El Tajin was a city as well as a religious center, with a large stratified population that included skilled artisans, merchants, priests, and administrators. Judging by sherd cover and stratigraphy, the city occupied at least 5 km² during its maximum period, probably between A.D. 600-900.

Instituto de Antropología Universidad Veracruzana Xalapa, Ver., Mexico October, 1971

In 1969 José García Payón, the archaeologist in charge of the great site of El Tajin, Veracruz, Mexico, invited the authors to work with him for the coming field season. Ray Krotser was to map the site (Fig. 1) in much the same way as he mapped San Lorenzo on the Río Chiquito (Coe 1967, 1968, Fig. 2). And Paula Krotser was to try to establish a ceramic sequence for the occupation of El Tajin, since the only excavation previously done for this purpose, that of DuSolier (1945), did not yield a chronology.

We worked during the period beginning November 1, 1969, and ending March 15, 1970, assisted by 2 graduate students in archaeology, Lourdes Beauregard García and Bertha Aguayo Lozano. Our total labor force consisted of a maximum of 9 Totonac youths from García Payón's regular crew who worked on clearing and restoring structures.

RESEARCH STRATEGY

Our research strategy had to take into account the limitations under which we were to work. While fulfilling the objectives set forth by

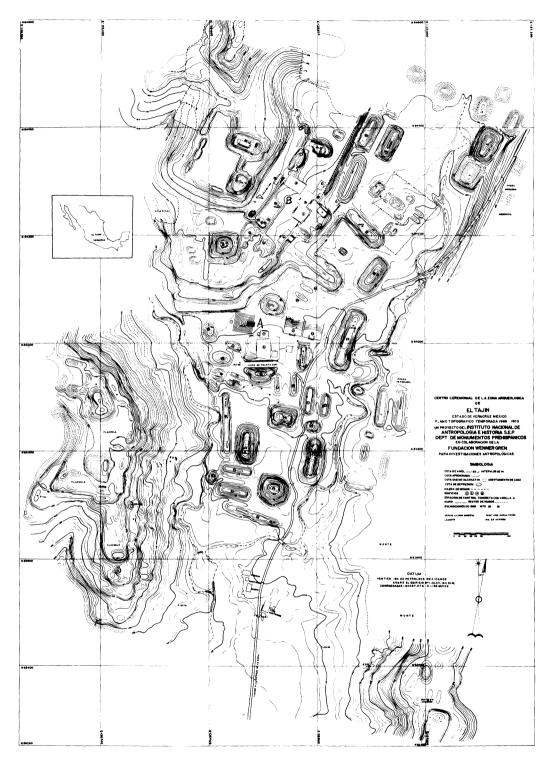


Fig. 1. El Tajin central area. Pyramid of the Niches: A, Tajín Chico; B, More than 200 structures, including 11 ball courts. Mapped at scale of 1:1000.

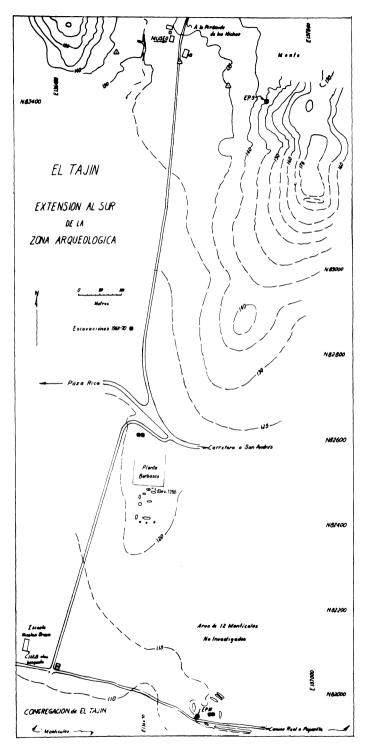


Fig. 2. El Tajin. Extension of archaeological zone south of ceremonial center. Map shows project excavations 2 km south of Pyramid of the Niches, and general area of some 50 mounds in the Congregación of El Tajin. Mapped at 1:2000.

García Payón, at the same time we wanted to come up with some valid hypotheses about the extent and nature of El Tajin during its florescence. Like the great Maya ceremonial centers, until recently considered "vacant towns," El Tajin has been thought of as primarily a religious center, a focus for pilgrimages from a wide area of support, without consideration of the possibility of its having been a city. We wanted to investigate this possibility.

By combining intensive surface survey of selected areas with detailed observation of the area being mapped, and the results of a series of stratigraphic pits located on the basis of the surface surveys, we hoped to be able to propose some testable hypotheses about the sort of population immediately around the ceremonial center, and to suggest a rough estimate of the size of the settlement. In effect, we have been able to do this, although any realistic calculation of the total area and population of the city will have to be based on a project allowing far more time and personnel than we had at our disposal.

THE NATURE OF THE SITE

The archaeological zone of El Tajin consists of a ceremonial center, with approximately 60 ha under the supervision of the Instituto Nacional de Antropología e Historia, and an undetermined number of square kilometers with housemounds and lesser mound groups radiating out from this center. The Pyramid of the Niches and associated large stone structures and ballcourts occupy a plain open to the south, and bounded by long ridges on the east and west. To the north, rise a series of hills with a projecting central ridge that has been modified into a long terrace upon which were built the residential structures of Tajin Chico. To the west of Tajin Chico, a series of terraces rise, crowned by the Temple of the Columns, which has its own large court and mound complex. There are more than 200 mounds, including 11 ballcourts, shown in the map, which covers approximately 3/4 km² (Fig. 1).

Geologically, the zone consists of calcareous sandstones, sands and clays of marine origin, as indicated by the abundant fossils of shellfish. It is an upper Oligocene formation dated to 25 million years (Petroleos Méxicanos 1969). On

the lower flat, there exists a swampy condition due to the presence of a stratum of impermeable clay less than a meter below ground level, and also to the almost total lack of fall in the plazas and ballcourts between the mounds. For this reason, it seemed most unlikely that we would encounter remains of residential occupation on the central plain. Furthermore, on the slopes of the surrounding hills overlooking the ceremonial center is a series of ancient marine terraces that seemed to us to be the likeliest place to look for house remains.

THE SURFACE SURVEYS

Knowing that our time and resources would not permit us to sample the complete universe (Rootenberg 1964:182) of El Tajin, we limited our field to the remains of domestic occupation. We selected 4 areas on the slopes overlooking the plain and made intensive surface collections from measured parts of these. Because the dense tropical vegetation makes sherd recovery impossible in uncleared areas, we selected cultivated fields for all but one; it consisted of a burned-over part of a pasture. We obtained abundant sherds, mainly of cooking and serving vessels, a very little ground stone, and a moderate sprinkling of obsidian. We collected 11,332 sherds from an area approximately 2.1 ha in size.

As the season progressed, the mapping crew brought in valuable information about different parts of the zone. From time to time, we accompanied them to take spot samples of the sherd cover and to observe housemound distribution. On the basis of our intimate knowledge of the 74 ha included in the map, we estimate that approximately 24 ha were either unsuitable for living or occupied by major ceremonial structures. Thus, we consider that our sample represents 4% of the potentially residential land within the area mapped.

SETTLEMENT AND SUBSISTENCE

We dug test excavations on 4 of the terraces from which we had made surface collections. In every case, house sites were encountered with abundant sherds and the remains of stucco or stone floors which helped to clarify the stratigraphy. Stylistic changes suggest 3 phases within the Mexican Classic period, roughly from

A.D. 100 to A.D. 900. In the uppermost layers, including the highest floors, we recovered ceramic types dated as late Classic from other parts of central Veracruz (Medellín Zenil 1960:58). These late types, together with 2 types of olla and a shallow cooking bowl which we also consider to be late from their stratigraphic position, were so predominant in our surface collections that it seems probable that the period of maximum population and activity at El Tajín occurred between A.D. 600 and A.D. 900. We hope to be able to strengthen this hypothesis with radiocarbon dates from 2 hearths and a burned house.

The houses into which we excavated suggest occupation by a group economically intermediate between the peasants and the city's rulers, who appear to have lived in the elaborate palaces of Tajin Chico. These might have been merchants or master craftsmen in whose workshops fine textiles were produced, wooden furniture, ornaments of bone and horn, and fine ceramics, of which only the last survived as evidence of an elegant life style. They might also have been the architects, sculptors, and painters whose work survives in the elaborate temples and palaces of the ceremonial center.

In an average of 2 m depth of sherd-bearing fills representing several amplifications of the terraces, we recovered abundant fragments of finely made serving dishes. In these same houses, the identified food bones represented turkey, deer, armadillo, and shark, as well as opossum, toad, and a small but savory land turtle (Wing n.d.). There were also dog bones (Canis familiaris) in the upper levels.

DID THEY EAT TORTILLAS?

The total absence of flat comales, and the almost complete absence of mano and metate fragments in our excavations raises an interesting question. Did the Tajin people make tortillas, and if so, at what time did they appear? The tortilla forms the base of the diet of present day Tajin Totonac families, but it is supplemented by several other starchy foods. These include banana and plantain, large starchy squashes, and 2 types of manioc (Kelly and Palerm 1952:155). Flat comales are present during the entire period of urban Teotihuacan, which roughly corresponds to the period of heavy occupation at El Tajin. Considering that

the humid tropical climate is not ideal for growing corn, it seems valid to suggest that if corn was indeed eaten there during the Classic period, it was not a major part of the diet and was not made into tortillas. Besides the starchy roots and cucurbits, Kelly and Palerm (1952) list a number of fruits considered to be prehispanic that still form part of the diet: 3 kinds of plum, papaya, 6 or 7 zapotes of different families, guavas, and avocados (1952:142). All the evidence points to a rich and varied diet for at least the more prosperous artisans and farmers of the ancient city.

THE CERAMICS

This brief report does not attempt to include descriptions in detail of all the excavations and the ceramics recovered. A preliminary ceramic description was presented to the meeting of the Society for American Archaeology in Mexico in April-May 1970 (Krotser and Beauregard 1970). The full descriptions of ceramics, together with frequency charts are in the report which is to be published by the Instituto de Antropología e Historia in Mexico.

The fine serving dishes mentioned above, which were numerous in all levels, are flat bottomed, thin-walled bowls that vary from flaring to hemispherical forms. Over a white slip, they are painted in brilliant reds, oranges, or ochres. About 50% of the pieces have been smoked inside or outside after firing, resulting in a whole range of subtle colors. Small globular vessels of fine paste suggest drinking cups. Elaborately decorated thin-walled ollas which we consider types of a ware described by Medellín (1960:64) as "Bandas ásperas" from the deliberately roughened lower surface, occur in all levels. These show changes in neck form and lip painting that prove to be good time markers. Another important type of cooking vessel is the flaring shallow bowl we called "Fogón burdo." It is apparently identical to a shallow bowl illustrated from Uaxactun (Smith 1955, Fig. 49, 9).

Another vessel with strong Peten resemblance is a brazier of which we encountered 6 fragments in a house fill. It appears to be a pronged burner with a ring base, similar to the Teotihuacan burners, except that they were supported by a separate inverted vessel instead of the attached ring (Sejourné 1966, Lám.8,

9; Smith 1955, Fig. 17a, 1, 8). Excavating into a late Classic reservoir, we were able to reconstruct the form of a white-slipped, surface-brushed water jar. We had recovered sherds of this type in all house excavations.

Other interesting, less numerous forms included parts of multi-tube flutes, a carved support from a cylindrical tripod more like Peten Maya than Teotihuacan, the central part of a "copa ware" goblet of definitely Teotihuacan type, and fragments of ladles with handles that suggest the snout of a dog. The figurines included modeled heads of various animals, some of which were ocarinas, and moldmade phallic male figurines associated with late Classic types.

It should be mentioned that within the zone itself we did not find an occupation deposit of the late ceramics that correspond to Ekholm's "Pánuco V" (1944:469), which is present in small quantities on the surface and in the rubble of the main ceremonial structures. It is somewhat more abundant in and around the Congregación of Tajin (Fig. 2), about a mile south of the entrance to the zone, but even there, in the 5 test pits we dug we found none of these types below a depth of 0.60 m. They are in the main Huastec types, those from central Veracruz considered Postclassic Totonac (Medellín Zenil 1960:131; Lám. 90, 91), and a fine paste black-on-red, Ekholm's "Las Flores Black-on-Red" (1944:394).

OBSIDIAN

We recovered broken prismatic blades of obsidian at all levels of our excavations. They are mostly dense black, but there are some banded gray pieces. The only green Hidalgo type found was a finely flaked arrow point recovered from the surface north of Tajin Chico. In the surface collections from the west hill, where most of our stratigraphic pits were dug, we found large fragments of scrapers as well as points and blades.

Our most interesting obsidian deposit was the remains of a small workshop where broken blades were reworked into points. This was on the large terrace where we dug into 3 house mounds. On the surface and in the upper layers of all 3 pits we recovered 11 broken and 2 whole points, numerous blade fragments with incipient notches, and more waste flakes than elsewhere. We hope to be able to supplement radiocarbon dates with obsidian hydration data, and to identify the sources of the obsidian.

CONCLUSIONS

From this single season of mapping, surface survey, and excavation at El Tajin we are prepared to offer hypotheses only about the period of its greatest activity. Pending the results of radiocarbon dating we judge by the ceramic deposits that the first period of construction with stone and stucco occurred in the early Classic period, approximately A.D. 100. The population was at its maximum from around A.D. 600 to A.D. 900, at which time the city must have extended over at least 5 km², with hundreds of houses surrounded by gardens and fruit trees. This estimate must be taken as tentative until more extensive surface surveys can be made, but the suggested maximum size and population is based on the number and distribution of mound complexes and habitable terraces that surround the area mapped. A slow flight by helicopter during which we examined the present distribution of houses, cultivated fields, and terraces suitable for house construction was of great help to us in observing the total area of probable settlement. Our Totonac workers whose relatives occupy these fields and homes told us that the sherd cover in the cultivated fields is similar in quantity to that of the milpas they helped us to surface collect.

A complex, stratified population must have existed to have built the temples, carved the elaborate sculptures, made and used the ceramics, and supplied and administered the material and religious life. The Tajin Chico palaces were built on 2 levels, adorned with niches and grecas formed of stone, then plastered and painted in brilliant colors. Other residences associated with the outlying ballcourts and temples were also of stone and plaster construction. They were surrounded by houses on the terraces that, judging by the stone distribution in the milpas, must at least have had well constructed foundations and floors. Finally, it is unlikely that any trace would remain of the

many wattle and daub cottages occupied by the peasant class.

In a region legendary since prehispanic times for the richness of its soil and the abundance of all sorts of wild food plants, the problem of feeding the city could not have been a major one. Fruit trees and plants bearing edible roots were probably sown around the houses. The identified food bones suggest a wealth of game, fish, and shellfish from the coast, the large nearby Tecolutla river, and the high jungle. In addition to what was produced by a resident peasant class, it is probable that produce was brought in from a wide support area.

The question of who built El Tajin is still only partially answered (García Payón 1964). It is not within the competence of this investigator to discuss the architectural sequence, but the ceramics suggest that both Maya and Totonac elements are strong from the city's first major period of construction. Typically Huastec sherds seem to be limited to the latest period, along with such well known Postclassic Totonac types as Quiahuistlan and Tres Picos (Medellín Zenil 1960:131; Lám. 90, 91). However, the presence of these and the black-on-red type called by García Payón "Negro sobre rojo de la India" (1953:385) in the rubble of reconstructed buildings and in minor quantities on the surface within the zone can only be clarified by excavations on the unreconstructed temple mounds. What is suggested is that the late population lived south of the ceremonial center, but visited the temples to render homage to its gods, in the same way that the Pyramid of the Sun at Teotihuacan and the great Tikal temples were revisited by Postclassic peoples.

Acknowledgments. We wish to thank the Instituto Nacional de Antropología e Historia, and particularly, their representative, Don José García Payón, for making it possible for us to work at El Tajin. Thanks also to the Wenner-Gren Foundation for Anthropological Research for the grant-in-aid which enabled us to complete our work. We wish to express our appreciation to our assistants, Lourdes Beauregard García and Bertha Aguayo Lozano and to the young Totonacs who made up our field crews. For their interest, and for practical help, we thank Prof. Alfonso Medellín Zenil, René Millon, George Cowgill, and the engineers of Petróleos Mexicanos in Poza Rica. And to Elizabeth S. Wing of the Florida State Museum, our sincere

thanks for her identification of the animal bones from our excavations.

Coe, Michael D.

1967 Map of San Lorenzo, an Olmec site in Veracruz, Mexico. Yale University, New Haven.

1968 San Lorenzo and the Olmec Civilization. In Dumbarton Oaks Conference on the Olmec, edited by Elizabeth P. Benson, pp. 41-78. Dumbarton Oaks Research Library and Collection, Washington.

DuSolier, Wilfrido

1945 La cerámica arqueológica de El Tajin. Anales del Museo Nacional de Arqueología, Historia y Etnografía, Tomo III.

Ekholm, Gordon F.

1944 Excavations at Tampico and Panuco in the Huasteca, Mexico. American Museum of Natural History, Anthropological Papers 37. Garcia Payon, Jose

1953 Qué es lo Totonaco? In Huastecos, Totonacos v sus Vecinos. Sociedad Mexicana de Antropología, Mexico.

1964 Quiénes construyeron El Tajín? Resultados de las últimas exploraciones en la temporada 1961-1962. Actas y Memorias del XXXV Congreso Internacional de Americanistas, Mexico.

Kelly, Isabel, and Angel Palerm

1952 The Tajin Totonac. Smithsonian Institution, Institute of Social Anthropology, Publication 13.

Kroster, Paula H., and Lourdes Beauregard García

1970 Informe preliminar sobre la cerámica de El Tajín. Paper presented at 1970 meeting of the Society for American Archaeology, Mexico. Mimeographed by Instituto de Antropología de la Universidad Veracruzana, Xalapa, Ver. Medellín Zenil, Alfonso

1960 Cerámicas del Totonacapan: Exploraciones arqueológicas en el centro de Veracruz. Universidad Veracruzana, Instituto de Antropología, Xalapa, Ver.

Petroleos Mexicanos

1969 Columna geológica del área de las Ruínas del Tajín. Mimeographed by Petróleos Mexicanos, Poza Rica, Ver.

Rootenberg, S.

1964 Archaeological field sampling. American Antiquity 30:181-188.

Sejourné, Laurette

1966 Arqueología de Teotihuacan, la cerámica. Fondo de Cultura Económica, Mexico-Buenos Aires.

Smith, Robert E.

1955 Ceramic sequence at Uaxactun, Guatemala. Middle American Research Institute, Publication 20.

Wing, Elizabeth S.

n.d. Identification of excavated animal bones from El Tajín. In Investigaciones en El Tajin, 1969-1970, Paula H. Krotser and G. R. Krotser. Instituto Nacional de Antropología e Historia, Mexico. (In press, ms. 1970.)