X-Kukican: University Of Alabama Investigations At A Maya Site In Yucatán, Mexico, 1965-1969
Edited by Vernon James Knight
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X-Kukican: University Of Alabama Investigations At A Maya Site In Yucatán, Mexico, 1965-1969
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X-Kukican: University Of Alabama Investigations At A Maya Site In Yucatán, Mexico, 1965-1969

Edited by Vernon James Knight

With a new Introduction by Edward B. Kurjack

A project co-directed by David L. DeJarnette and Alfredo Barrera Vásquez

In three parts

With contributions by

John W. Cottier
Edward B. Kurjack
Jerry J. Nielsen
Boyce N. Driskell
Craig T. Sheldon, Jr.

Illustrations by
Oscar W. Brock

University of Alabama
Tuscaloosa, Alabama 2017
In Memoriam

Edward B. Kurjack
1938-2014

John W. Cottier
1940-2015
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Reported here are the results of three seasons of archaeological research at the Maya site of X-Kukican, located in the Puuc Hills region of Yucatán. This research was conducted from 1965-1969 as a collaboration between the University of Alabama and the Instituto Yucateco de Antropología e Historia (IYAH), under a series of contractual agreements with the Instituto Nacional de Antropología e Historia in Mexico City (INAH). David L. DeJarnette served as principal investigator for the University of Alabama while Dr. Alfredo Barrera Vásquez represented the IYAH. This was the University of Alabama’s first venture into Mayan archaeology.

The site and the research accomplished are noteworthy in a number of ways. First, the site features an extensive and well-preserved underground cavern of some 36 accessible rooms running for over 900 m of passageways utilized in antiquity. The opening is directly beneath the primary acropolis of surface buildings, making the site a noteworthy example of the Mesoamerican relationship between pyramids and caves. Much of this cave system, called X-Kukican cave, was untouched in modern times; it revealed 20 panels of cave wall art, 93 human burials, numerous artifact caches, and numerous utilitarian water jars and bowls, all of which were mapped in place. On the surface, most of the field effort was devoted to producing an accurate map of surface structures of all kinds, from masonry palace complexes connected by artificial causeways to simple rubble house platforms, within a large zone. In all, some 18 building complexes were placed on a master map incorporating 157 structures classified by type of masonry architecture. Also mapped were all instances of raised causeways or sacbeob, water cisterns or chultunes, stelae, metates, and additional utilized caves and bluff shelters. Apart from the main acropolis area (Complex A), nine structures within the archaeological zone were excavated to some degree, with attention to functional and status differences in their artifact assemblages. Three bluff shelters were test-excavated stratigraphically in search of chronological evidence. Taken together, the remains date from the Formative through Pure Florescent periods of Yucatecan Maya prehistory.

The X-Kukican research has relevance to a number of current themes in Mesoamerican archaeology, perhaps especially for its emphases on the regional settlement pattern and on Maya cave archaeology. However, very little was published at the time due to the fact that the project was halted prematurely in 1969. David L. DeJarnette was unable to personally supervise the field work after 1967 due to illness, leaving that task largely to his former graduate student Edward B. Kurjack under Barrera’s oversight. Kurjack himself left the project after the 1969 season to begin his dissertation research at Ohio State University. A series of grant applications submitted by the University of Alabama to continue the work through 1974 were not awarded.

Some of this material did see the light of day. David L. DeJarnette and Jerry J. Nielsen (1972) published a brief summary of the work in the South Eastern Latin Americanist, anatomist E. Carl Sensenig published an account of the skeletal remains from X-Kukican Cave, and Alfredo Barrera Vásquez (1980) published an additional short notice. John W. Cottier used the results of the first seasons’ research (Part I of this work) as the basis for a Master’s thesis completed at the University of Alabama in 1967. Despite this, the site is not nearly as well known as it should be in view of the amount of work accomplished there. Our reason for compiling a formal publication some 50 years after the fact is the conviction that the data will be of continuing interest to Maya scholars.

DISCOVERY OF THE SITE AND HISTORICAL CONTEXT OF THE PROJECT

Yucatan: A Search for Evidence of Man's Antiquity in the Caverns of Central America (1896), Mercer, who called the site Skokikan and its cave Actun Skokikan (“Cave of Serpents”) devoted little space to it and evidently explored only the entranceway to the cave (The full passage from Mercer is reproduced in Part I of this work). After Mercer’s visit, the place seems not to have been visited professionally until the 1960s.

The University of Alabama’s entry into the X-Kukican project began with the explorations of an eccentric entomologist and explorer by the name of J. Manson Valentine. Valentine had been informally associated with Alabama Museum of Natural History (ALMNH) collecting expeditions since the mid-1920s, and was a good friend of Museum Director Walter B. Jones. He served officially with the ALMNH as Curator of Entomology between 1947 and 1961. Upon his retirement, members of the ALMNH Board of Regents remained interested in Valentine’s explorations and funded the expedition that led to the rediscovery of the site. Valentine and his companion Michel d’Obrenovic spent two weeks at X-Kukican in early 1962, and in 1965 Valentine published an account of his discoveries. Although the imprint bears the heading Alabama Museum of Natural History, Inc., Report 1, the account is not part of the regular AMNH publication series and evidently was privately published.

If Valentine’s entomological research was conventional, his views on early human history were decidedly not so. Valentine’s archaeological ideas were a version of latter-day catastrophism, reinterpreting conventional human history as one greatly affected by a series of catastrophic earthquakes, floods, and volcanic eruptions. Moreover, he was a bit of a mystic, a student of the prophesy of J. Edgar Cayce. Thus he was convinced that the Maya built human figures on the walls. Exploring as far as beneath the surface acropolis (it does not; this is Room 15 nearby, a “great hall of enigmas” supposed to lie directly below the surface acropolis, actually a natural cave formation), a deliberately constructed booby-trap consisting of a triggered stone with a “warning” glyph nearby, a “great hall of enigmas” supposed to lie directly beneath the surface acropolis (it does not; this is Room 15 described in Part I), and crudely incised, “definitely non-Mayan,” human figures on the walls. Exploring as far as Room 15, Valentine confidently predicted the existence of a major Maya tomb beyond, perhaps the tomb of the fabled culture hero Kukulcan himself, and “whole libraries” of hidden Maya codices. X-Kukican cave was, for Valentine, full of nothing less than “signs of an extremely archaic and universal system of mystical knowledge” (1965:25).

Aside from his eccentricities, Valentine must be credited with the recognition that X-Kukican cave was an unusually large and well-preserved Maya cave that was utilized for a long time, one that contained important wall art and other evidences of ritual use. He reported his findings to Dr. Alfredo Barrera Vásquez in Merida, who responded by creating a formally bounded Archaeological Zone meriting government protections. These activities stimulated David L. DeJarnette to visit Barrera and the site, leading to their long-term partnership. Ultimately, a series of contracts respecting archaeological research were drawn up between Barrera’s Instituto Yucateco de Antropología e Historia and the University of Alabama with the Instituto Nacional de Antropología e Historia (INAH).

**CONDUCT OF THE ARCHAEOLOGICAL WORK**

A camp compound for the use of the project, consisting of nine structures, was built on the outskirts of the small town of San José X-Kuncheil (Fig. P.1). These buildings, constructed by local workers, were of traditional wattle and daub construction with thatched roofs, each built on an apsidal (rectangular with rounded ends) plan. They were of various sizes, and were built to specification for the functions they were to serve: three as sleeping quarters, one as a kitchen (Fig. P.2) and another as a dining area, one as a field laboratory, one as a storage building, and two for latrines and showers. The compound was surrounded by a brush fence. Because of the inherent interest of the native architectural tradition to the project, the construction of these buildings was extensively documented with color slides and movie film (Fig. P.3).

The conduct of the surface survey at X-Kukican was strongly influenced by the prior archaeological survey at the site of Dzibilchaltun, located north of Merida in Yucatán (Andrews and Andrews, 1980; Kurjack, 1974). The Dzibilchaltun survey was designed to generate as complete a community pattern as was possible from the mapping of all forms of visible surface remains in a large area, from the smallest to the largest. There, both Kurjack and Cottier were working with E. Wyllys Andrews IV and John C. Scheffler at the time the X-Kukican project was organized; both had previously worked for DeJarnette at the University of Alabama. It was Kurjack who suggested to DeJarnette that Cottier might be eligible to act as an assistant field director to the principal investigators (Fig. P.4). As noted by Kurjack in his Introduction to this volume, during the field work at X-Kukican both Andrews and Mexican archaeologist Dr. Roman Piña Chan served as unofficial advisors.

Thus, both Kurjack and Cottier brought to the X-Kukican project a mix of training in Maya archaeology under Andrews and southeastern North American archaeology under DeJarnette. As Kurjack points out in his Introduction, the introduction of southeastern North American field methods at X-Kukican shows in several ways. One was the emphasis on classifying, quantifying, and reporting all potsherds from all contexts, whether...
diagnostic or not, something uncommon in Maya archaeology. This emphasis can be seen in the numerous tables, particularly in Part 1. Another was the emphasis placed on the stratigraphic excavation of bluff shelters at X-Kukican. Kurjack, Cottier, and other Alabama participants were experienced in shelter excavation, having previously taken part in an extensive campaign, headed by DeJarnette, to search for traces of early human occupation in the bluff shelters of northern Alabama (DeJarnette et al., 1962).

A rather extraordinary aspect of the X-Kukican cave exploration and mapping during the initial field season was the meticulous effort to leave the cave as undisturbed as possible (Fig. P.5). Most of the artifacts from caches were left in the cave, in situ, including such fancy items
as a polychrome painted cylinder vase. Other items left in the cave only temporarily to be measured, recorded, and illustrated, later to be returned to their original find spot. Burials were left in situ, with only a few removed to be studied during a brief visit by physical anthropologist Dr. E. Carl Sensenig (Fig. P.6). These remains were also returned to the cave following the study. At the end of the initial field season X-Kukican cave was sealed with rock, and two security guards were hired to prevent re-entry after the departure of the field party.

Given the structure of the reporting by field seasons in Parts 1-3, it will be worth summarizing here the accomplishments of each of the three field seasons and the participation of University of Alabama personnel in each.

Season 1 (reported in Part 1)

Season 2 (reported in Part 2)
October 13, 1967—January 12, 1968. UA personnel: David L. DeJarnette, Edward B. Kurjack, Jerry J. Nielsen, Boyce N. Driskell. Expansion of the surface survey and mapping to the north (Complexes B through H; Sacbeob 1-3; Structures 28-81; Stelae 1-3; Monuments 1-3), with extensive revision of the project base map. Separate topographic mapping of investigated caves (Bluff Shelter 4, Gruta Xucnaí, Gruta Kolchéé, Gruta de Bec). Preparation of three monthly progress reports and a seasonal synthesis report.

Season 3 (reported in Part 3)
March 24, 1969—July 14, 1969. UA personnel: Edward B. Kurjack, Ned J. Jenkins, Cailup B. Curren, Ron Rainey. Further expansion of the surface survey and mapping program (Complexes I through R; Structures 93-160), with extensive revision of the project base map. Trenching of Sacbe 1 and further investigation of Sacbe 2 and 3. Excavations by Kurjack of Structures 28, 80, 84, 85, 113, 114, 124, 141, 124, 141, 160, as noted below. Preparation of a seasonal synthesis report.

STRUCTURES EXCAVATED BY KURJACK IN 1969

Ed Kurjack envisioned a comparative study of architecture at X-Kukican. To that end, while the Season 3 mapping crew was expanding the survey coverage within the Archaeological Zone, Kurjack directed a separate, local crew in excavating at least nine structures from various areas. As described in his Introduction, Kurjack considered all such structures to be Maya residences, and thus directly reflective of differences in access to social and political power. In consequence, the structures chosen for excavation included a wide range, from a small “gravel mound” presumably representing the foundation of a simple wattle-and-daub building, to the other extreme, consisting of all-masonry Puuc-style buildings with vaulted roofs lining the margins of plazas. Some of the structures chosen for excavation were isolated on the landscape, while others were parts of formal building complexes, often sharing a common substructure. Reflecting his belief that Maya society featured not merely a distinction between political elites and common farmers, but instead a range of social identities in-between, Kurjack focused a great deal of attention on “mid-range” architecture that seemed to reflect some access to resources above the common level. These were multi-room structures often built upon low artificial platforms of earth and rubble bounded by simple retaining walls. The structures themselves showed only a basal course of crude masonry one or two stones wide, enclosing thinly plastered gravel floors. The roofs were presumably thatched.

Due to the unanticipated discontinuance of the project after the third field season, the results of these excavations were not written up, then or subsequently, and were not available for inclusion in the third season’s report (Part 3). Nonetheless the field and laboratory notes still exist, and they would well repay study in the future. These notes make it clear that not only architectural differences but also material culture distinctions were of great interest to the excavator. Artifact lots were collected by room, or sometimes within artificial quadrants of rooms, and where plaster floors existed, material above and below those floors was segregated. In the interest of demonstrating functional differentiation among various rooms, the
notes contain numerous statistical tests of differences in proportion of ceramic types. Kurjack includes one such table showing clear differences in the artifact content of adjacent rooms in his Introduction to this volume.

Because of the importance of these excavations to the project, and because they are not mentioned in the seasonal reports to follow, the editor has added a brief new appendix to the end of Part 3, the season report for 1969, which summarizes each of the excavated structures for which notes are readily at hand. For the reader to gain a better sense of what was done, certain photos from these excavations are included in that appendix.

THE UNIVERSITY OF ALABAMA IN YUCATÁN

The X-Kukican archaeological project was conducted within the context of a much broader involvement by University of Alabama faculty in Yucatan studies. Professor Asael T. Hansen, one of the founding members of the UA Department of Anthropology, had done key ethnographic field-work in Merida in 1931-1934. That work, sponsored by the Carnegie Institution of Washington, D.C., was part of a now-famous study directed by Robert Redfield, which was a controlled comparison of Yucatecan communities along a folk-urban continuum. Hansen's assignment was to gather data on the urban dimension of the continuum, but the results were not published until five decades after the fact (Hansen, 1980; Hansen and Bastarrachea, 1984).

As the archaeological collaboration of the 1960s progressed, Dr. Barrera established ties with a number of University of Alabama faculty in the social sciences, with whom he envisioned academic collaboration on a broad front. The first project accomplished was to microfilm the collection of rare Yucatecan documents at the Instituto Yucateco de Antropología e Historia, placing these microfilms in the University of Alabama Library system and formally publishing the catalog of the items with the University of Alabama Press (Bingham, 1972). Following the appointment of Barrera as Research Associate in the UA Department of Anthropology in 1969, there was a constant flow of Alabama faculty and students conducting research in Yucatán for the next two decades.

A framework for interdisciplinary research in Yucatán was formalized in the UA Latin American Studies Program in 1973. With assistance from the UA Research Grants Committee, participating faculty included Professors of Anthropology Paul H. Nesbitt, C. Earle Smith, Richard A. Krause, and Michael D. Murphy; Professor of Sociology Irving L. Webber; Professor of Romance Languages Edward D. Terry; Professor of Economics Eric N. Baklanoff; Professor of Geography Eugene M. Wilson; and Professors of History Edward H. Moseley and Helen Delpar. A number of published articles and books resulted from these trips, perhaps most prominent of which is the collection Yucatán: A World Apart, edited by Moseley and Terry (1980). As a culmination of these efforts, the Alfredo Barrera Vásquez Center for Yucatecan Studies was established at the University of Alabama in the 1980s under the direction of Edward D. Terry.

EDITORIAL NOTE

This study consists of three main parts, corresponding to the annual reports of the three field seasons submitted to the Instituto Nacional de Antropología e Historia (INAH) in Mexico City, as called for by the formal contracts. Copies were submitted in both English and Spanish. A fourth report entitled Final Field Report of the Investigations at the Archaeological Zone of X-Kukican, Yucatan, Mexico (DeJarnette et al., 1966) is not included here, as it is merely a summary and is inferior to the much fuller report of the first season's investigations prepared by John W. Cottier. To accompany the three seasonal reports, the editor asked the late Edward B. Kurjack to prepare a new introduction. Professor Kurjack enthusiastically agreed to do this, and his new introduction to the research follows this preface. In it, Kurjack not only reviews the various facets of the work, but also revisits some of his ideas on Maya settlement patterns and their relation to social organization (see also Kurjack, 1974).

A key note for the reader is that the three annual reports, Parts 1-3 herein, appear essentially as they were written in the late 1960s. No attempt has been made to update the text in relation to modern Maya archaeology. The editor has merely assembled the reports, smoothing the original text in places using a light editorial hand, and has omitted certain photographs and illustrations that are no longer of usable quality. Thus, the reader can expect to discover certain anachronisms, which will be obvious.

It is particularly worth pointing out that this material was written well prior to the rather recent emergence of Mesoamerican cave archaeology as a cohesive topic. J. Eric Thompson's historically important synthesis of Maya cave use was published as preface to a reprint of Mercer's Hill Caves of Yucatan only in 1975, a decade after the X-Kukican research began. More recent research has seen a strong shift in perspective towards the ritual use of cave landscapes and their place in cosmological visions of ancient and modern Maya (for a summary see Brady and Prufer 2005 and the papers in that collection). In a modern context, the careful reader of the X-Kukican material will note how thoroughly intermixed is the evidence of ritual use—caches, burials, and wall art—with the pervasive evidence for the routine use of the cave as a utilitarian water source. Even in the deepest reaches of X-Kukican cave there are common water jars and other basins used to collect and transport drippper, extending even to heavy stone metates dragged deep into the cave for use as catch-basins.
The University of Alabama research at X-Kukican focused on exploration of the cave there, test pitting the bluff shelters near the ruins, studying the architecture of the main acropolis, and carrying out a settlement study. This introduction begins with a discussion of the settlement pattern research at the site. The reader will find comments at the end of this introduction on the very detailed description of the acropolis or largest palace (Complex A); a chamber by chamber report of X-Kukican cave; and the depth distribution of artifacts from the bluff shelter excavations. The artifacts and sherds are tabulated and presented in a meticulous manner not characteristic of most generalized works on the Maya but very typical of reports on sites in the Southeastern United States.

SETTLEMENT PATTERN RESEARCH AT X-KUKICAN

X-Kukican, with its prominent causeway between Structure Complexes A and B, is an example of the “Labna Model” (Garza and Kurjack, 1980) of site layout, the notion that a special relationship exists between the people that once lived in the buildings linked by these roads. Standing on the biggest mound at X-Kukican in 1969, I looked over the long axial causeway towards the architectural complex where it terminated about half a kilometer away. I didn’t realize then how crucial that view would be to my future thinking about the Maya.

The task at hand, as planned by Prof. David L. DeJarnette and Dr. Alfredo Barrera Vásquez, the directors of the X-Kukican project, was to continue the survey of the site in the same way our mapping and test pitting crews had worked at Dzibilchaltun. There I had become impressed with the variety of small houses that had seldom been studied elsewhere. Comparison of these little known ordinary dwellings with the energy expensive all-masonry habitations is essential for the understanding of Maya society as a whole.

Trained in the Maya area under the tutelage of Dr. E. Wyllys Andrews IV and then a fresh Ph. D. candidate armed with ideas stressed by professors at Ohio State, my primary objective was to compare the domestic architecture at X-Kukican with what we found at Dzibilchaltun. We expected the similarities and contrasts in house types to have important implications for Maya social organization.

Due to the serious illness of Professor DeJarnette, my efforts in the field were guided by Dr. Barrera, with whom every conversation left me with a seed of wisdom, and advice from Dr. Roman Piña Chan when he visited the site.

Domestic Architecture at X-Kukican: Small Structures

My first research question was: How many modest structural remains such as those at Dzibilchaltun would we encounter at X-Kukican? With a few significant exceptions, most Maya field studies ignored small ruins but the Dzibilchaltun survey purposely examined every bit of diminutive architecture we could find. Would we uncover similar remains at X-Kukican?

Most of the small architecture on the Dzibilchaltun map consisted low heaps of rock and gravel fill without visible retaining walls. We labeled these gravel mounds “low simple platforms with no remaining retaining walls” and represented them as quadrilateral in plan with dashed lines indicating the location of possible retaining walls. Test pits in many of these mounds produced a small number of eroded sherds, but excavations in others uncovered no evidence of human use.

Did we deceive ourselves by identifying some natural features as artificial constructions? The director of our
research at Dzibilchaltun certainly did not think so; whenever Dr. Andrews inspected our work, he usually embarrassed us by pointing out such structures we had missed.

**Gravel Mounds**

Would we find gravel mounds at X-Kukican? Gravel mounds are particularly abundant when archaeologists encounter an agricultural field (*milpa*) that has been burned clear by swidden (slash-and-burn) farmers. Complex P on the base map of X-Kukican (Frontispiece) represents such a field. Seemingly formless gravel mounds filled the area, but despite the impression that much of the surface consisted of artificial remains, walls did not stand out. Several returns to the field did however reveal segments of retaining walls, a half buried metate, a few eroded surface sherds, and even a bark-beater. The survey crew demanded instructions on what to map there; my reply, after showing them some of the more probable dry masonry wall segments, was to “draw in what you see.” Their efforts proved either more or less adept at interpreting the place than my own; clearly structural remains were present, but the configuration of walls they mapped was unlikely. Perhaps the area could be better understood after a season of work dedicated to that field alone.

Test pitting in a search for possible artifacts and clearing rubble from possible masonry was carried out in several locations within the “milpa area” (Fig. K.1). A few eroded sherds were encountered under the surface in various places; but only the gravel mound labeled Structure 139 yielded a significant amount of ceramics: 306 sherds, mostly eroded slateware fragments, a small number of unslipped striated sherds, the rim portions of at least three bolster-rim basins, and a sherd from a semi-hemispherical bowl. The collection included two slateware strap handles and two eroded ring bases.

The interpretation of the features described above is part of an even more basic dilemma in Maya settlement research: there is a contrast between the examples of clearly defined masonry (including large platforms, wall foundations of buildings with thatched roofs, and vaulted structures) at Maya sites and the vague remains of simpler or poorly preserved construction. Interpreting an ancient community can easily reference the more or less standing architectural evidence but the less reliable information, such as “gravel mounds” may be quite significant as well.

My conclusion from the work at the *milpa* is that the remains of small Maya structures exist and that these certainly cannot all be located even by a careful surface survey. These bits of human effort are hard to recognize because of their size, because of serious disturbance, or perhaps because they represent the results of later quarrying for building material. Of course northern Yucatán is covered by low vegetation; the immense trees that once grew in the Puuc region and areas to the south can disturb any small ruin to the point that it cannot be recognized. The implication from my point of view is that prehispanic Maya settlements contained a significantly greater populace than the extant ruined structures alone would suggest. The only way for archaeologists to reach a similar conclusion requires time and effort carefully investigating the surface of burned over agricultural fields. Clearly I should have expended more time in the “milpa” at X-Kukican working on this problem.

**Archaeological Evidence for the Traditional Maya Cottage**

Would we find archaeological evidence of the traditional Maya house at X-Kukican? We certainly expended considerable time searching for such remains. Since the Spanish Conquest, most inhabitants of northern Yucatán have lived in one room thatched cottages with wattle-and-daub walls on stone foundations. The weight of the roof is carried by four wooden posts and crossbeams; no load rests on the wattle and daub walls. Careful surveying at Dzibilchaltun revealed stone walls with rounded corners similar in size and shape to the “apsidal” Maya house so common in rural Yucatán today.

While quadrilateral outlines of buildings on low platforms are common at Maya sites, only intensive searching at a few pre-Columbian settlements has recognized structures with rounded-end plans. Moreover, no remains of houses with curved corners were found after years of detailed mapping at Mayapan, the late protohistoric site so frequently mentioned in the sixteenth-century chronicles. For this reason, Robert Wauchope (1940), the eminent student of modern Maya houses, considered the ubiquitous thatched northern Maya dwelling to be a late introduction. He changed that opinion as explorations at Dzibilchaltun encountered wall

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**Figure K.1. Structure 141. A gravel mound in the milpa area, after exploration. No ceramics were encountered but the structure appears to be more artificial after a search for retaining walls. Most archaeologists would not bother with such questionable architecture.**
foundations with rounded corners from the sixteenth century and earlier. Nevertheless, although surveyors did come upon similar structures at other Maya settlements, we were surprised by our failure to find more than a single example of an early traditional Maya house at X-Kukican.

The apsidal shape of the common Maya cottage adds space at either end of the dwelling and perhaps even results in a measure of structural stability in an area known for storms and high winds. I have passed months of life in a thatched Maya house during heavy downpours, so I am not surprised at the amazing number of traditional abodes that survive devastating hurricanes. Of course, strong gales can blow the thatch into disarray, so after some storms the present-day Maya must repair roofs and dry their belongings. Numerous all-masonry vaulted buildings, however, still stand after weathering storm-filled centuries; these structures would be distinctly safer during a hurricane than those covered with thatched roofs! Sedentary villagers have obvious reasons other than prestige to invest in the more expensive, durable masonry.

Years of studying Maya houses including empty residential lots in settlements occupied since colonial times have convinced me that structures with wattle-and-daub walls and thatched roofs just do not leave easily recognized evidence. Villagers today rest their wattle and daub walls on low masonry foundations, so most of the “gravel mounds” at Dzibilchaltun were considered the equivalent of the contemporary apsidal house foundation. In many, or even most cases we were probably wrong; the numerous clear examples of structures with rounded corners at Dzibilchaltun did not have typical wattle and daub walls; instead I am convinced that they represent an infrequently encountered variety of traditional Yucatecan housing made from dry wall masonry and roofed over with thatch (see Wauchop, 1938). Similar structures can still be observed in many villages. The basal masonry courses of such dwellings must consist of particularly large upright slabs. Once set in place these heavy pieces of limestone are difficult to move; so at Dzibilchaltun the complete foundations of numerous structures remained in situ. A test pit at the center of one of these buildings revealed a late Classic cyst burial, confirming the date of the ancient house.

The rounded ends of dry masonry walls imply that wattle and daub was used at the same time for the walls of other buildings. An examination of foundations for contemporary houses would suggest how to distinguish between those archaeological examples that had wattle-and-daub or dry masonry walls.

Archaeologists have tended to assume that the masonry components of structures with thatch roofs fell apart because they were constructed with dry walls; of course this is not necessarily so. The mortar at the magnificent Temple of the Seven Dolls at Dzibilchaltun was pure mud; there is no reason to reject the conclusion that inferior masonry with little or no amount of lime in the mortar was utilized for numerous small buildings. In other words, we should search for evidence of mortar and determine the amount of lime in the mortar.

The significance of the distinction between houses with wattle curved around corners and rectangular masonry buildings rests in two material contrasts that have important social consequences. First, the traditional Maya cottage is relatively easy to construct with materials readily available in the forest, making it an economic choice for migratory farmers who often abandon their dwellings when they move elsewhere. Rather than squared edges, bending thin rods of basketry-like wickerwork to form the rounded corners is easier than forcing that wattle into a right angle.

The second consequence is that building an addition to a single-room house with rounded corners is almost impossible; a separate building has to be constructed if extra space is needed.

A new room for a quadrilateral structure, however, requires only three new walls and an extension of the roofing. In the Near East the early Neolithic change from round structures to quadrilateral ones resulted in compact settlements; in the Maya country architectural accumulations of adjacent quadrilateral rooms made it possible for elite kin groups to live together in palaces. These groupings of privileged kinsmen could protect their prerogatives with superior organization developed from living in close proximity, numerical strength, and the ability to readily concentrate force for a military effort.

Houses with Masonry Roofs

What would be the number and distribution of small masonry roofed building with one to four rooms at X-Kukican? Studies of Maya architecture still focus on those larger edifices or “palaces” that are still standing, but most of the all-masonry Maya construction, even in the Puuc area, is rather small and has collapsed roofs; the overwhelming majority of the vaulted remains are one- to three-room structures that have caved in. Most of the ceramic collections from such buildings at both Dzibilchaltun and X-Kukican included sherds from large unslipped jars with striated sides and slateware bolster-rim basins; both of these types suggest domestic function. Thus the majority of the smaller structures with vaults probably served as dwellings for the elite.

Archaeologists generally assume that the numerous low platforms at Maya sites that presumably supported thatched habitations should be considered house remains because of their abundance. This same logic also leads to the conclusion that any profusion of small vaulted edifices must have served a domestic function too.

The energy cost of vaulted structures, even small all-masonry houses, was considerably greater than the labor invested in thatched dwellings. This statement takes into account the quarrying of stone wall and vault blocks as well as burning lime, digging up marl, and carrying water
to mix mortar. Moreover, building relatively complex masonry structures, especially vaults, probably required a specialized work force that added to the “cost.” Important people usually live in expensive houses, so contrasts in the amount of energy used to modify domestic space in a community is an excellent measure of social stratification.

While several large architectural complexes including vaulted palaces and high pyramidal structures are found in Complexes A, B and C, most of the all-masonry buildings at X-Kukican consist of only a few rooms. The standard room plan includes an area of approximately 5 by 3 to 4 m with a single door leading to the outside. Communication between rooms is not facilitated; contact between people living in different rooms can only take place by occupants leaving their habitations.

Even in the small structures, the plan of a few vaulted rooms includes entrances with one or more columns or extra doorways. This increased access facilitating communication from individuals on the plaza with the occupants of those rooms suggests an added purpose related to the social and political status and roles of the inhabitants. Consider the ground plans of Structures 112 and 113 (Fig. K.2). The two Pure Florescent buildings stand on a single platform. The center room of Structure 112 has three entrances facing the plaza, while the two end rooms have doorways facing away from the complex center. All of the rooms of Structure 113 front on the plaza, but the center room has a column in the center for use with lintels making the entrance bigger. It is relatively easy to envision which rooms were planned to facilitate communication and which were built for increased privacy.

**Dwellings of Intermediate Size and Cost**

Would we encounter houses intermediate in energy cost between the small vaulted “palaces” and the ruins analogous to common Maya house? At Dzibilchaltun such structures seemed to represent housing of a “middle” social level. The best example of a middle level house at X-Kukican is Structure 28, a three room dwelling that had a thatched roof judging from the limited amount of rubble present and the lack of wall features needed to support a vault (Fig. K.3). A line of metates at the front of the structure called attention to the place; some of these trough shaped limestone artifacts had been recently moved to their present location and re-arranged in order to provide water for livestock or bee hives. The ground plan of the building, consisting of a half-buried basal course of masonry, was visible on the surface. Test-pits revealed thin plaster coverings over typical gravel floors preserved near the corners of the three rooms. Excavation revealed doorways above the low basal molding at the east side of each room. The walls of the north room buried earlier corners, showing that the third room was an addition to the first two.

Most of the pottery from the building was collected from that north room; the majority of the sherds there were parts of unslipped striated jars best used for carrying and storing water (Table K.1). Sherds from bolster-rim basins, a few fragments of mammal bones, and a stemmed projectile point were also encountered in that north room. Thus, during the last phases of occupation, the north

<table>
<thead>
<tr>
<th>Type</th>
<th>South</th>
<th>Center</th>
<th>North</th>
</tr>
</thead>
<tbody>
<tr>
<td>unslipped striated utility jar</td>
<td>68</td>
<td>114</td>
<td>1777</td>
</tr>
<tr>
<td>medium slateware hemispherical bowl</td>
<td>−</td>
<td>−</td>
<td>65</td>
</tr>
<tr>
<td>rim from bolster-rim basin</td>
<td>−</td>
<td>−</td>
<td>7</td>
</tr>
<tr>
<td>ring-footed hemispherical bowl</td>
<td>1</td>
<td>9</td>
<td>−</td>
</tr>
<tr>
<td>tripod slateware plate with lug feet</td>
<td>−</td>
<td>−</td>
<td>2</td>
</tr>
<tr>
<td>basal angle break tripod slateware plate</td>
<td>−</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>miscellaneous</td>
<td>165</td>
<td>183</td>
<td></td>
</tr>
</tbody>
</table>

**Totals**

|       | 234 | 311 | 1853 |

**Table K.1. Sherd distribution, Structure 28.**
that walkway. Again I had cause to remember the layout of Labna, where two large “palaces” at the center of that complex) in order to maintain their prerogatives. The strength derived from their numbers and superior housing compounds for the purpose of concentrating a definite pattern.

COMMUNITY ORGANIZATION

Except for the obvious conclusion that the pre-Columbian population was highly stratified, my understanding of Maya community organization was quite vague when I looked out in 1969 over Sacbe 1 from the X-Kukican acropolis. Sacbe, plural sacbeob, is the Maya term for these “white roads.” But that view of the X-Kukican axial causeway that I recall so well was an unmistakable point of similarity with Dzibilchaltun (Kurjack, 1974). The resemblance to the site at Labna is even more instructive.

X-Kukican is a ruin grouping of intermediate size. The main sacbe there, one measure of the extent of the site, is about 350 m long. By contrast, the three major Maya “roads” at Dzibilchaltun link a pair of adjacent central plazas to three key architectural complexes about a kilometer distant to the east, south and west. Thus Dzibilchaltun is well over six times as large as X-Kukican.

Later I studied aerial photographs of other sites that were integrated by sacbeob (Kurjack and Andrews, 1976). I was particularly impressed by maps and photographs of Labna, where two large “palaces” at the center of that ancient settlement were connected by an elevated masonry walkway. Again I had cause to remember the layout of X-Kukican.

The X-Kukican map (Frontispiece) illustrates a version of the “Labna model” of Maya settlement configuration (see Garza and Kurjack, 1980). Labna is a particularly beautiful Maya site explored by Stephens and Catherwood (Stephens, 1843) and described in several publications by Edward Thompson (1887, 1897b). A recent dissertation by Tomás M. Gallareta Negrón (2013) records the architecture there in detail and discusses the implications for social organization. The central part of the site consists of two large “palaces” situated about 200 m apart and joined by a masonry causeway. I consider the palaces to be dwellings for the two most significant kin groups at Labna. These elite families lived together in compacted housing compounds for the purpose of concentrating the strength derived from their numbers and superior organization (acquired from living in a single building complex) in order to maintain their prerogatives. The causeway clearly represents a special relationship between the inhabitants of the two palaces; certainly these groups had to cooperate in the construction and maintenance of that walkway.

Each palace stands on its own platform and the causeway linking the two housing complexes acts as an extension of those platforms. The edges of a platform constitute a barrier marking space reserved for the social group or family inhabiting the structures on the sides of such elevated areas. Causeways between platforms partially erase that boundary effect. The elevated masonry walkway leading from one palace to another is a material encouragement for the individuals occupying the two elite dwellings to interact.

Although other domestic groups at Labna lived in small multiple family houses, none of their dwellings were as exaggerated in size as the two largest architectural complexes. The two principle palaces had the largest construction cost and could provide accommodation for the greatest number of relatives. The palaces grew in size over time and indicate continuous evolution of social stratification. The architectural plans and dimensions of the palaces suggest a social level not duplicated elsewhere at the site, because the nearest similar palace is about a kilometer to the north at X-Canalcruz. Maler (1971), however, did consider X-Canalcruz to be part of Labna; following that pioneer’s lead, the Atlas of Yucatán (Garza and Kurjack, 1980) also considered the two locations the same community. This observation underlines the problem of defining the extent of many Maya sites.

The causeway between the two complexes at Labna and X-Kukican did comply with the simple function of allowing people to walk across the low area from one palace to the other without getting their feet covered with mud; but the energy cost of these long, broad walkways implies other more significant purposes as well. A few sacbeob, especially the one between the Grand Elevation at Chichen Itza to the “Cenote of Sacrifice” connect features that were not primarily domestic in function; perhaps these served as elevated processional ways during mass rituals.

I contend that typical Maya causeways represented the idea of a special relationship between kin groups living in sumptuous houses and the expectation that a marriage alliance between the leading families of the town be perpetuated by future intermarriages. The energy expended in the construction of the opulent dwellings at the ends of causeways suggests that the families living in them were the highest ranking people in the settlement; we would expect such eminent kin groups to find spouses for their offspring among their nearest neighbors of similar prestige. Any such marriage alliance of long duration between the two key groups of palace dwellers at Labna would result in a coalition that could dominate other inhabitants of the community.

More than two causeways link architectural groups at Dzibilchaltun and other sites including X-Kukican. Sacbe 2 at X-Kukican connects Structures 44 and 47 while Sacbe 3 originates at Complex D-1, a short distance north of Sacbe 2, and extends in an almost parallel manner towards Structure 44. The dyads and triads of building
groups at complex settlements are interpreted as repeats of the simple twofold Labna pattern and indications of special relationships between multiple sets of families.

While the idea that the material evidence of causeways between architectural groups can be interpreted as a marriage alliance might seem to be as far-fetched as some of other dubious notions about the Maya, the argument is based on considerable social science thought.

Archaeological settlement studies are founded on arguments about the way contacts between social groups diminish as the distance separating them grows. Human interaction occurs when an individual behaves in a way that elicits a response from another; the frequency of such events depends in part on the distance between the people involved. While young gentlemen from New York City, USA, do marry ladies from Beijing, China, these occurrences are rare due at least in part to the expanse of space separating the two populations. Most people find their spouses from the eligible residents of their home communities. Indeed songs and stories salute the virtue of the “girl next door.” Of course the cost of travel is not the only variable influencing interaction; it is not hard to understand that those New Yorkers with relatives in China might find brides there with greater frequency than other people in the metropolis. In a pedestrian society such as were the pre-Columbian Maya, however, the distance would have been an even better predictor of everyday contacts.

Marriage alliances between ranking families in a Maya community protected and reinforced social bonds, group cohesion, elitism and political power. The “gravity model” (see Zipf, 1949) is a formal way of expressing this type of patterned interaction. People quickly learn the more economical way to carry out their work, especially the travel they must do. This “principle of least effort” guides our behavior. Based on this proposition, formulations have been modeled on the attractive force generated by planetary bodies in proportion to their size. Thus communities generate influences drawing neighbors to them: this power is dependent on the size of the population, but that force is diminished by the distance separating people. Thus the relative amount of traffic between two cities is proportional to their size and the distance between them.

Even without the presence of causeways indicating social ties between the two great houses at Labna, we should expect strong interaction between the individuals concentrated in the two places. Their dwellings were similar in organization and different from the other houses; as noted, the nearest palace similar to those at Labna is at X-Kanalcruz almost a kilometer away.

It is not difficult to assume a special relationship involving people occupying architecture linked by these expensive walkways. Three levels of association are suggested by sacbeob: Some causeways connect architectural complexes within the centers of Maya settlements; others link central building complexes with outliers at the margins of the communities; and long causeways join distinct towns.

The longer causeways appear to link the settlements of a polity. Usually one site along a sacbe contains large architectural monuments at its centers while the others are considerably smaller. Sites that stand out in size appear to be the main settlement of the political entity. This argument, first expressed by Kurjack and Andrews (1976), is compatible with the proposition that marriage alliances between key families at principal settlements were a significant aspect of the political culture.

THE CAVES AT X-KUKICAN

During their season of fieldwork at the site Professor David L. DeJarnette, John Cottier, Craig Sheldon, and Oscar W. Brock prepared a detailed description of X-Kukican cave. This report was an arduous task, for Yucatecan caverns are unimaginably hot and lack fresh air. The copious report they produced under these conditions is a very useful addition to the literature highlighting the role of caves in northern Maya society.

We used the name “X-Kukican” in deference to modern conventions for writing the Yucatec language, but Mercer (1896) called the place “Skokikan, Cave of Serpents.” He published a four-page account of the site, Mercer’s explorations in the caverns of Yucatán were followed by a number of cave explorations in the northern Maya area, notably Loltun (Thompson 1897a), Spukil (Hatt et al., 1953), Balankanche (Andrews, 1970), and Chac (Mercer’s Actun Chack; see Andrews, 1965b).

Cave worship was an important focus of pre-Columbian Maya religious life (See Thompson, 1959; 1975). By tradition, rituals required the use of undefiled water from pools at the bottoms of caves or dripping from stalactites. The dead were often deposited in caverns. Deities were said to live in caves, where archaeologists frequently find offerings left by native worshipers. Various myths even insist that the original human population emerged from a grotto. The best example of a sacred cave in northern Yucatán is Balankanche (Andrews, 1970), where effigy vessels and bowls were left by the inhabitants of Chichen Itza near a formation resembling the trunk of a Ceiba tree.

Some caves were used as sources of water, especially during the dry season droughts. Little distinction was made between underground water pools and cenotes, the places where the karst process exposed the water table, making access to the vital liquid easier. Both caves and cenotes figure prominently in Maya mythology. In the nineteenth century Catherwood painted villagers descending huge wooden stairs at Xcamumbixulnan (Stephens, 1843) with pottery water jars to procure water. Sherds from earlier periods of Maya history litter the surface of the cave. The Gruta de Chac contains another pool of water that is very difficult to reach; the long underground path to this
water source is polished by the passage of human feet and is littered with broken jars (Andrews, 1965b; Mercer, 1896; see Stephens, 1843).

The present report, in Part 1, describes the grotto adjacent to the acropolis chamber by chamber. Ceramics, artifacts, graffiti, hand impressions, deposits of corpses in pools of water, and caches are described in exceptional detail. The chapters may well be the best description of a cavern that was used by the Maya, evidently first for provision of water and later for ritual purposes.

This report notes that Preclassic and Early Classic ceramics are restricted to the front rooms of the cave, while later sherds accompany the evidence of ritual activity in deeper chambers. The team identified parts of the cave that may have once been pools of water but are now dry. A significant drop in the water table is a probable explanation for these observations; this proposition has significance for those who advance the idea that climate change influenced the history of Mesoamerican society.

BLUFF SHELTER EXCAVATIONS
The success of Professor DeJarnette’s study of late Pleistocene occupation at the Stanfield-Worley Bluff Shelter in northwest Alabama (DeJarnette et al., 1962) inspired the expectation that preceramic material might be found at three X-Kukican bluff shelters. After describing the surface features at these places, the research team excavated test pits and trenches (Part 1). Tables in Part 1, Appendix present the sherd depth distribution from the shelters by 10.0 cm levels. The artifacts collected pertain to Preclassic through Late Classic phases.

EXPLORATION OF THE X-KUKICAN ACROPOLIS
At X-Kukican, Cottier (Part 1) points out the architectural progression at the Acropolis from the late Early period to the early Pure Florescent. His analysis presents detailed descriptions of the changes in vault masonry during the early part of this series. The evidence from X-Kukican supports Andrews’s view of the Yucatecan Early period–Pure Florescent sequence.

The clearest contrast in north Yucatecan archaeology is the difference between the masonry of the Early period and Pure Florescent architectural phases. Vaulted Early period buildings have very little dressing on wall blocks except for corners, lintels, moldings and jambs. The vaults are constructed with stone slabs projected progressively until the remaining distance between walls can be covered by a flat capstone. Facade decoration consists of an intricately carved layer of thick stucco. Pure Florescent buildings, however, have neatly squared and dressed veneer wall blocks sticking into the mortar and stone core of the walls. The earliest structures with veneer wall blocks retained the slab vault; later the finely carved and tenoned boot-shaped stones were used on the vaults. Evidence of a transition from Early period vaults to Pure Florescent masonry was collected by Andrews at Dzibilchaltun, Acanceh, and Yaxcopil (Andrews, 1965a).

The essence of the change from the slab vault to the evolved veneer vault is the slow development of the boot-shaped vault stone. The other transformation was the progressive elaboration of carved limestone facade elements until the late Pure Florescent mosaic facade appeared. Little evidence of the late “mosaic style” facade, such as the buildings seen at Las Monjas at Uxmal, however, was encountered at X-Kukican. Moreover, the vault veneer stones at the two stylistically early Pure Florescent Structures 12 and 13 were far from the symmetrical boot-shaped tenons found at Uxmal and Chichen Itza; the vaults were covered with well dressed quadrilateral elements but the upper part of the “boot” that protruded into the vault core was crudely shaped and pointed right, left or center.
Part 1.

Preliminary Archaeological Investigations
At The Archaeological Zone Of X-Kukican, Yucatán, Mexico

by John W. Cottier
(May, 1967)

The following report is based upon field-work conducted by a University of Alabama research party during the time period of November 20, 1965 to January 22, 1966. This field-work was a continuation of the interest in the Archaeological Zone of X-Kukican by the University of Alabama and had as its major purpose a preliminary survey to determine the extent of archaeological remains within this Zone. This report therefore provides only a brief and tantalizing first taste of what may be expected from additional investigations at the site.

In spite of the great temptation to cover only lightly the artifactual details presented here, knowing that the necessary further investigations will permit more complete reporting based on fuller comprehension and understanding, this report describes in some detail the work conducted during this brief project.

BACKGROUND

The Archaeological Zone of X-Kukican is located within the Puuc Hills region of the peninsula of Yucatán (Fig. 1.1). The Zone lies about 8 miles south of Oxkutzcab, which is on the Muna-to-Chetumal Federal Highway 184 about 105 km from Merida, the capital of the state. Although the portion of the Puuc Hills around the Archaeological Zone is almost unpopulated, the small settlement of San Jose X-Kuncheil is located about 3 km from the Zone, and several currently cultivated milpa tracts are also within about 500 m of the site.

The Archaeological Zone of X-Kukican itself, as will be described in more detail later, is basically composed of a compact acropolis complex with sacbe, several bluff shelters or cuevas abiertas, and a large cave complex (Fig. 1.2). The site was briefly visited in 1895 by members of Henry Mercer’s exploratory party. This party did little more than enter the mouth of the cave complex, and Mercer’s brief account reveals little of the archaeological nature of the site. As Mercer’s published report is difficult to secure, the information relative to the site is presented here in his own words:

Sometimes we heard of tigers’ dens like Tiplamas, but the accounts of Actun Skokikan (Cave of Serpents) outdid our well-remembered stories of snake dens in the Southern Alleghenies. No one had dared to enter Skokikan for several years. Those who had ventured to look down into the chasm described a dark area swaying like the surface of a stirred pudding. This was a mass of intertwined snakes. Others had heard rustling noises but had seen nothing, and sometimes snakes had been lured into the light by the beating of drums. Eye-witnesses described immense folds of serpents large as tree-trunks moving in the shadow. Leaving the snakes out of the question, the description of the cave as a narrow rift descending almost perpendicularly nearly one hundred feet, without water, light, or earth floor, decided against it as a place fit for exploration. Nevertheless it was found well worth examination when Mr. Corwith accompanied by Frank Hauser and two Indians, visited it after a walk of two leagues in the mid-day sun. They had crossed the mountain and walked for several hours through the close thicket, when to their surprise they came suddenly upon a group of ruins. A crumbling wall was surrounded by an enclosure sixty to seventy feet square, at one end of
which stood an oblong mound, and this they entered by a low door, to find a well-preserved stone chamber, about twelve feet long by six feet wide, with an earth floor. The Indians, who had said nothing of the ruin before, called the mound Skokikan, and at length led on to the cave of evil repute, not one hundred feet away. There a rift about twelve feet long by eight feet high opened almost vertically in the level rock, and they went to the edge and listened, but heard nothing. Looking down, they saw a passage descending at a steep angle and faintly lit by the slanting sun's rays. As no snakes were to be seen, they entered and stepped cautiously downward, halting often to shout and throw stones, until the candles gave out, when the Indians went into the woods, to return with torches of twigs. In the light of these they noticed potsherds on the steep slope as they descended, though a faint ray of sunlight followed them down the rift for a hundred feet at least to its bottom, and there they halted before a small opening between white stalactites. As they were about to crawl in a strong, sickening smell, which Mr. Corwith compared to that of decayed liquids shaken suddenly in an open bottle, caused them to stop, but when they had passed the opening it ceased. They had reached a chamber about thirty feet in diameter, and, crossing it carefully, with torches held at arm's length, were nearly sickened by the smell again at the mouth of a low gallery leading into a second chamber. Leaving it behind them, as they crawled on they met it still again in a cramped hole, which blocked their way at the end of the last room. If it was the smell of snakes the reptiles must have lurked in branching fissures, but no sign of them was seen or heard, and no poisonous swarm cut off their retreat while their torches waned in the threatening darkness [Mercer, 1896:143-144]. At this point Mercer ends his description of the cavern.

Figure 1.1. The peninsula of Yucatán, showing the location of the Archaeological Zone of X-Kukican.
and speculates upon the origin of the name “Skokikan.” It is apparent that the party also discovered and visited Bluff Shelter No. 1, for in a footnote Mercer states:

About one hundred yards from Actun Skokikan Mr. Corwith found another cave, reached by cutting a path through the bushes. The cool and beautiful shelter, about fifty feet broad and seven feet high at the entrance, penetrated under the side of the sink for about thirty feet. In it there were several stalactites but no water. Trenches might have been dug in the earth floor, upon which lay pot-sherds and bones. Many game blinds were noticed, and the Indians said that the place was a tiger’s den [Mercer, 1896:142].

Although Edward Thompson (1897a) visited the cave of Loltun in 1888 and again in 1890, he does not mention X-Kukican despite the fact that it is located only about 8 km away. Nor does he refer to X-Kukican in his study of several caves and archaeological sites around Oxkutzcab. He does, however, record a report from native hunters of a cave in the Puuc Hills near Oxkutzcab, which contained figures and a square-cut panel upon its walls (Thompson, 1904:7). As several caves in the vicinity of Oxkutzcab were reported by local informants to contain carvings or figures, it would be only by rare chance that this unnamed cave was that of X-Kukican.

No mention is made of X-Kukican in the several later large-scale studies, which pertain in part to the caves within the Puuc region of Yucatán, such as A. S. Pearse and collaborators (1938), Robert Hatt and collaborators (1953), and George Brainerd (1958).

Reference to X-Kukican does appear upon several archaeological maps of the Maya area, yet, so far as is known, no exploration subsequent to Mercer’s trip in 1895 was made until the early part of 1962. At that time, Dr. J. Manson Valentine, an entomologist formerly with the ALMNH, and his associates visited the Archaeological Zone and directed their efforts toward the inspection of certain areas of the large cave system of X-Kukican. This was, then, really the first modern penetration into the cave system, since the members of Mercer’s party did not proceed much farther than the entrance itself. After several days of exploration by Dr. Valentine, about 150 m of cave passageways had been briefly investigated. In this exploration certain features were discovered, such as pictographs and painted areas upon the cave walls and intact or nearly intact ceramic vessels, which greatly impressed Valentine’s group. Therefore, the

Figure 1.2. The Archaeological Zone of X-Kukican, Yucatán Mexico 1965-1966.
party returned to Merida and reported the location of the site to Dr. Alfredo Barrera Vásquez, Director of the Instituto Yucateco de Antropología e Historia. Dr. Barrera Vásquez accompanied Dr. Valentine and his associates to the area on March 2, 1962. The impressive nature of the archaeological material and the rarity of finding such material in an almost undisturbed state led Dr. Barrera to place the entire Archaeological Zone under the protection of the Instituto Nacional de Antropología e Historia and to seal the entrance to the cave itself.

Valentine’s (1965) published account of his exploration provides little factual evidence relative to the archaeological knowledge of Yucatán. His general description of the Archaeological Zone of X-Kukican is limited by his lack of archaeological training, which also perhaps limits the range of his observation. He must, however, be credited with the discovery of certain of the pictographs and handprints within the cave complex.

Since 1962, several trips have been made to the Archaeological Zone by various interested parties. These were all one-day ventures, and permission to journey there was always secured from the local office of the Instituto Nacional de Antropología e Historia.

Interest in the Archaeological Zone was stimulated by various individuals at the University of Alabama after a visit to the site on May 9, 1962, by David L. DeJarnette and Ralph L. Chemnock of the University; Dr. Barrera Vásquez; and Dr. E. Wyllys Andrews of the Middle American Research Institute of Tulane University.

A suitable plan of research was then formulated by the University of Alabama and the Instituto Yucateco de Antropología e Historia, which led to a formal archaeological contract with the Instituto Nacional de Antropología e Historia representing the Republic of Mexico.

The University of Alabama research party traveled to the Archaeological Zone of X-Kukican in a Volkswagen Kombi, arriving on November 14, 1965, at a field camp constructed by the Instituto Yucateco de Antropología e Historia at San Jose X-Kuncheil. Field-work at the Archaeological Zone was conducted five to six days a week from November 20, 1965, until January 22, 1966.

SITUATION

The site lies on a long narrow ridge in the Puuc, or hill region, of Yucatán. This ridge runs for an undetermined distance in an east-west direction, and although it is not the highest ridge in the immediate area, from the summit of Structure 15 it is possible to see a considerable distance both to the north and to the east. To the north and northeast, the ominous ridge which composes the northern Sierrita is visible across a wide valley. To the southeast, this same valley extends for almost as far as the eye can see. The view to the west is blocked by the higher elevation of the immediate ridge, and to the south by a parallel ridge across a small valley.

The majority of the surface features of this area, like the peninsula of Yucatán itself, are composed of limestone, which is white to slightly pink in color. Pockets of a red soil are scattered over the country, the above-mentioned valley to the north and east being covered with a thin deposit of this soil.

The nearest major water source today is the deep Colonial-period well located at San Jose X-Kuncheil. However, natural and human-modified rain catch basins cover the countryside. During most of the field season, our crew of local workers was provided with water from several such basins located near Structure 17 and Bluff Shelters No. 2 and 3.

The vegetation is that of a low, thorny forest with scattered stands of hardwood. This monte or brush is higher and thicker than that present in the northern or henequen zone of Yucatán. Several milpas, some freshly cut and others overgrown in secondary brush, are found scattered around the Archaeological Zone. The valley to the north and east of the Zone appears to be the choice location, although one milpa was located to the west of Bluff Shelter No. 3 on the same ridge as the Archaeological Zone. Various crops besides the ubiquitous corn were evident in these milpas, and the valley contained several cultivated citrus groves. Bee hives, cows, and horses were constant sights around the milpas and the Archaeological Zone. These, along with small hunting parties, were evidence of present human business in the area.

Several much-used foot and horse trails cross the region around the Archaeological Zone. Most of these point toward Oxkutzcab and provide byways for milperos and others as they traverse the brush forest. A major trail skirts the edge of the Zone, and from the point where it intersects our constructed trail from San Jose X-Kuncheil to the Zone, it is 24 km to Xul along this trail and about 7 km to Oxkutzcab. This is perhaps the most direct route to Oxkutzcab from X-Kukican, but after having traveled it once one wishes for a more passable trail, however indirect.

The area abounds in evidence of an archaeological nature. In the valley to the north of the Archaeological Zone is located the site of Xtancia-Kaa, which is perhaps connected to X-Kukican by the sacbe leading from that site. Recognized architectural construction at Xtancia-Kaa dates from the late Early period and the Pure Florescent, and includes the remains of at least eight vaulted structures. Carved tenoned stone elements in the form of spindles and small columns were observed both in situ and upon the surface of several structures. Several boot-shaped vault stones were also present. In a small vaulted group a fragment of a carved doorjamb was observed. This sculpture, referred to as a stela by local informants, depicts a male figure seated cross-legged on an elaborate cushion or seat. The left hand rests on the left knee, but the right hand and arm are not clearly defined. The head faces to the right in profile, adorned with some form of plumed headpiece. A pectoral of large beads with
an oval double circle and a pendant hangs down nearly to the waist. The style and method of execution would place this sculpture in the late Early period. It measured 127 cm high, 63 cm wide, and 20 cm thick, with the carved portion 89 cm by 55 cm and about 1 cm deep. This panel is badly eroded, so before leaving the site the party placed the carved section face down to provide at least some protection from the elements.

Additional archaeological sites reported by local informants include X-Mulikun located 4 km to the west of the Archaeological Zone of X-Kukican, X-Jobon Pich and X-Tanpak 3 km to the south, X-Max-Actun and Actun X-Kamal 3 km and Actun Romero 1 km to the east, and Zak-Niktee 5 km to the north. Not any of these sites were visited by the field party though several unnamed small barren caves near San Jose X-Kuncheil were briefly visited.

CHRONOLOGICAL DESCRIPTION OF THE ARCHAEOLOGY OF YUCATÁN

One of the major problems in conducting field-work in archaeological situations is to relate this investigation to an already constructed chronology or to a proposed chronology. As archaeological evidence may be colored or distorted according to the bent of the author, great care and impersonal judgment should be exercised in the construction of cultural units and divisions from material culture. This impartial care has been the case in much of the recent archaeology of Yucatán, so that it is now possible for investigators to set their findings against a partially completed background representing a long span of history. This framework is defined in terms of a Maya cultural evolution which serves to differentiate this culture from others elsewhere.

What follows next is, then, a very brief summary of the prehistory of Yucatán. For a more detailed examination, the reader is referred to Andrews (1965a).

The Formative Period

The Formative is the first period identified within the area, and Brainerd (1951, 1958) has constructed three stages present within the peninsula of Yucatán. The classification of these stages is based primarily upon ceramic evidence; the Early Formative from Mani pattern burnished ware found only at the Mani cenote; Middle Formative, which is present in the Chenes area, yet not found in the northern plains; and Late Formative, which is found over much of Yucatán.

The most recent exploration of the Late Formative in Yucatán has occurred at Dzibilchaltun, where Andrews (1960, 1962, 1965a) has recovered ceramic equivalents to the Mamon and Chichanel phases of the Peten. This sequence reveals an early thin monochrome pottery, which gives way later to coarser monochrome wares. The most common vessel form is that of a large flat-to slightly convex-bottomed basal angle break bowl. Cylinders and jar forms are also present in varied shapes, with the majority of these wares sherd-tempered.

The Early Period

Sometime between 100 B.C. and A.D. 100 what is considered true Maya culture appeared within Yucatán. The distinctive characteristics of the corbelled arch in architecture and the first major use of carved stone and sculpture became an integral part of this culture. A two-part division of this period is based partially upon ceramics, with the first phase corresponding to the Tzakol ceramic phases of the Peten sequence. This Tzakol influence appears not only in the form of Peten gloss and polychrome trade ware types, but also in similar local wares. Archaeological sites of this period are few in Yucatán, yet a constant representation is present over much of the peninsula.

The second phase represents what may be considered a direct outgrowth of the first, with certain refinements. The slatewares have as their prototypes certain Tzakol slipped wares, and by the end of the Early period these slatewares appear as the dominant pottery complex in Yucatán. The tempering agent is predominantly local limestone.

Monumental architecture evolved as a manner of refinement, yet still remaining a block-wall and slab-vault type of construction throughout this period. Whereas vaulted structures with true masonry walls mark the earlier construction, by the end of this period individual wall stones with slightly developed tenons appear. Extensive spalling, which was once necessary for stress contact became almost unnecessary, and where early vault facings were of unworked rude slabs, the later versions were constructed of partially worked and more carefully fitted slabs.

An interim transitional period is hypothesized between the late Early period and the Pure Florescent. This is sustained more by architecture than by ceramics, for in vaulted construction examples of an early form of concrete-veneer wall masonry with refined slab vaults are present at several sites within Yucatán.

The Florescent Period

Classic centers in the Peten and in eastern Yucatán were either abandoned or greatly disrupted during this time period, but a great distinctive growth and building phase was flowering within the Puuc and northern plains area of Yucatán. This is, then, the second great period of prehistoric Maya culture present within the northern part of the peninsula of Yucatán. Its time period is divided into two major phases.

In the first phase, the Pure Florescent, architecture had evolved completely to that of concrete-veneer masonry. In this type of construction, walls were of concrete cores with a veneer of faced and squared tenoned stones. Vaults were
constructed in much the same manner, with prepared boot-shaped stones with long tenons utilized as a vault facing or veneer. This veneer was esthetic rather than functional in nature, for the structure was supported by the concrete core which composed the major part of the mass.

This distinctive style of architecture, often linked with the term Puuc, is a continuation of the concepts appearing within the previous period of transition. Prototypes of the veneer wall stones appear at several sites before this time, and squared and beveled vault stones appear at least at Yaxcopoil near Uxmal (Andrews, 1965a:310).

During the Pure Florescent, ceramics remained quite similar to those present during the late Early period, with the slatewares still the predominant pottery group. There do seem to be some subtle changes in vessel form during this time period, but as yet little investigation has been directed to this problem.

The second major phase within the northern area, the Modified Florescent, was marked by influences from Mexican cultures. Some cultural interaction has been noticed for most of the previous periods, but never to the extent evident within this phase. There is little doubt that this influence, considered to be Toltec, produced for a short time an art and architectural complex similar to that at Tula in the state of Hidalgo. In architecture many of the basic concepts of the Pure Florescent were continued, yet new structure forms and new architectural planning also appeared. Colonnades, carved serpents, “chac mool” figures and warrior representations are but several of the better known Toltec aspects represented in the art and architecture at the site of Chichen Itza during this time.

In ceramics the slatewares continued, although with some differences, as ash was used as a tempering agent in many cases and new vessel forms were also added to the slateware repertory. Tohil Plumbate and X-Type Fine Orange were also introduced as short-lived yet extensive trade ware types.

The Decadent Period

This turbulent period marks the last of the protohistoric Maya civilization. This time period is divided into three presently recognized phases: the Black-on-Cream Transitional phase, the Mayapan phase, and the Postmonumental phase.

The Black-on-Cream phase, although recognized at several localities in Yucatán, is perhaps best represented at Dzibilchaltun (Andrews, 1961). At that site, ceramic samples are firmly sealed with architectural construction, and many earlier structures were reused for habitation with little or no modification. The pottery associated with this phase, although resembling the slatewares in form and decoration, has a distinctive cream to white slip and a coarse paste not found in their slateware counterparts.

During the next phase, governmental and religious control was centered in the densely populated, walled city of Mayapan. This rule by the tribe of the Cocoms existed until about 1441 to 1461 (Pollock et al., 1962:6), when a rebellion destroyed their city. Architectural construction from this phase is a reversion back to the techniques that were in use during the Early period. Beam-and-mortar roofs and an extensive dependence on stucco were also characteristic during this time. Decadent redwares and ceremonial effigy censers are the predominant ceramics associated with this phase.

The Postmonumental phase carries this continuum from the fall of Mayapan until the final Spanish Conquest. The little known about this time period reveals that architectural construction was almost nonexistent, extensive reuse being made of the existing structures found throughout the area. In ceramics, very little change is apparent in the redwares, which carry over from Mayapan times. The types of censers reflect a quality much below that of the earlier periods, and tend toward crude cup or jar forms rather than the elaborate, often anthropomorphic, forms present during the Mayapan phase.

THE SURFACE RUINS

The surface ruins at the Archaeological Zone of X-Kukican basically consist of a plaza complex, some isolated structures, and a sacbe (Fig. 1.2). The plaza complex or acropolis is composed of 19 presently recognized structures or structure fragments, all of which rest upon a raised platform base. Eight additional structures were found within the immediate area, and the sacbe has as its terminus the northeastern face of the acropolis base.7

The surface ruins were investigated as thoroughly as was possible in a preliminary survey. Ground plans were plotted as far as feasible without extensive excavations, and in conjunction with this process architectural details were recorded as observed. To provide a greater time depth to the study and also to investigate the construction sequence of the primary structures on the acropolis, limited stratigraphic test units were excavated within and around the plaza complex. These units were 1 by 1 m square and were excavated to bedrock where possible. Excavation was either by 10 cm arbitrary levels or by cultural division such as floors or walls.

The plaza complex or acropolis structures all rested on a large multi-staged substructure. This primary platform occupied about 6,082 m² and varied in height from about 40 cm to over 220.0 cm above the surrounding terrain. The method of building this substructure was by the repeated addition of retaining walls, the area between these walls being composed of rubble fill and covered with small crushed stones.

Secondary retaining walls were placed at points, which would have perhaps been structurally weak, such as the corner of the substructure over Bluff Shelter No. 1 and near Structure No. 1. Projecting slightly above
the present surface of the substructure were several walls and wall fragments. Some were perhaps the result of enlargements of the primary platform, and are now distinguishable from retaining walls by the fact that they extend to the present surface of the platform, whereas walls originally constructed for retaining purposes never do. The quality of the stonework was also a factor in their recognition, for the facing of the outer retaining walls of the platform exhibited greater skill and care in construction. There was also a recognizable difference in wall construction around the substructure. Fig. 1.3 (top) illustrates typical construction near the junction of the sacbe and the platform. In this case the lower course of stones was composed of large upright slabs, perhaps placed in this manner to economize on facing stones. It was apparent, even in its ruined state, that most of this side of the platform was constructed in this manner. Fig. 1.3 (bottom) illustrates construction in the vicinity of Structure 10, showing what could be considered typical wall construction of block masonry with large flat stones utilized as an upper course.

Several test pits were placed within the platform itself. Units 16 and 17 were excavated within the center of the plaza formed by the major structures 2, 7, 9, 10, and 15. Very little material was recovered from these units (Part 1, Appendix, Table 1.19), and bedrock was encountered at a depth of 14 to 34 cm below the present plaza level. This level, the plaza floor, had the greatest elevation of any section of the substructure. The limited depth to bedrock below this level perhaps represents the Maya concept of utilizing natural terrain features to provide at least part of the bulk of a leveling process. In this case, it would appear that in the construction of the acropolis the large substructure platform was erected in part over an outcrop of bedrock. Hence it was necessary literally to raise the edges to a height equal to or almost equal to this outcrop.

THE SACBE

The sacbe terminated on the northeastern face of the substructure of the acropolis. At this point the outer retaining wall of the substructure was in such a poor state of repair that no indications of formal junction or steps were visible. The vertical distance from the sacbe to the platform level was about 2 m, and as there appeared to be more rubble from some form of construction at this junction point than would result from wall construction alone, perhaps a series of steps upon a short ramp gave access from the sacbe to the platform. In any case, some form of ramp or step arrangement would be almost a necessity when one considers the unequal height of these two features.

The sacbe itself was traced for 510 m in a northeasterly direction from the acropolis, and at that point extensive disturbance due to a much used milpa complex destroyed all visible traces of the sacbe construction. No attempt was made to continue along the sacbe on the other side of this milpa. If this had been tried, the sacbe would doubtless have been found to intersect part of the complex at the nearby site of Xtancia-Kaa.8

This causeway seldom rose more than 30 cm above the present ground surface and was at times almost flush with the ground level. It followed well the terrain, which sloped gently from the acropolis and which leveled out to a rather flat valley before the sacbe touched and was destroyed by the milpa complex. The sides of the sacbe were traced by single courses of stones, some slightly dressed, which were placed upon either their sides or their edges. The center fill appeared to have been made of small crushed stone with a high percentage of earth in it, and was perhaps once covered by a lime-concrete coating. The sacbe had practically the same width, 6.3 m, at every point measured.

A 1 m high and about 9 m square raised platform, Structure 27, was located on the northeast side of the sacbe, 266 m from the acropolis. No construction features were noticed upon its surface, nor were any steps visible. The structure was built immediately against the side of the causeway and thus appeared as a raised portion of the sacbe. The careful construction, however, seemed superior to that of the sacbe itself.
STRUCTURES

Twenty-seven structures were discovered and investigated at the Archaeological Zone of X-Kukican. Several of these represented rebuilding stages during the occupation of the site, and it is suspected that other rebuilding phases or disturbed structures may be present which were not uncovered during the preliminary survey. Each structure was investigated during the field process, both as a separate entity and again as a part of the general plan during the construction of the topographic map. Of these 27 structures, 11 were vaulted, 8 were unvaulted with masonry construction, and 8 were platforms perhaps originally serving as bases for structures of a perishable nature.

The next section of this report presents, in somewhat condensed form, the data and conclusions which were obtained from actual investigation of these structures. This was not a complete process in any given case, as interest dictated that some structures received less attention in the field than others. The ceramic and other artifact analyses of mentioned excavation units may be found in the Part 1 Appendix, Tables 1.1–1.19. Attention is directed to Fig. 1.4 for a generalized plan of some of the major structures which compose the acropolis.

Structure 1

Structure 1 was a vaulted single room structure located on an extension of the substructure of the acropolis. The structure is at the present time in a very poor state of preservation.

The walls are constructed of block masonry with an average thickness of 60 cm. Only one doorway was located with any degree of certainty. However, portions of three large stone lintels were observed around the structure. These lintels and the location of the doorway near one end of the structure indicate three probable doorways for the structure. The wall stones at the doorjamb and at the existing corners of the structure are better faced and worked than the remainder of the wall blocks.

Vault stones present within the rubble indicate a slab-type of vault construction, utilizing only flat stone, slightly faced and otherwise unworked.

Present upon the rubble remains of the structure were several worked and tenoned wall stones, which were
Figure 1.5. Top: Profile of the exposed upper facade of Structure 2. Original plaster in cruciform panels indicated by crosshatched lines. Size and shape of stones to scale. Bottom: Profile of a segment of the vault face of Structure 4. The cross section was taken near the left end of the vault. Size and shape of stones to scale; some spalls deleted.

Figure 1.6. View of a cruciform facade element of Structure 2. The large stone in the lower right is in situ in the spring of the vault of Room 2 of Structure 3. See Figure 1.5, top left.

doubtless intrusive from adjacent structures. A heavy grooved metate, Metate No. 3, was located near the northwest corner of the structure.

A 1 m square test pit, Unit 1, was excavated within the structure. This unit disclosed a lime-concrete floor in poor condition 64 cm below the highest point of the rubble remains. No additional features were uncovered within this unit.

Structure 2

Structure 2, along with Structures 3, 4, 5, and 6, formed one massive architectural unit. The sequence of construction for this unit has not been completely investigated. However, during the preliminary survey it was apparent that Structure 2 was constructed before Structure 3, Structure 3 before Structure 4, and Structures 2 and 3 before Structure 6. Structure 5 remains a mystery in this sequence, which is not too surprising considering the paucity of information available concerning it.

Structure 2 consisted of one side of the upper facade of a vaulted structure (Fig. 1.5, top). This facade was constructed of block masonry with a slight tendency toward a tenon on a few individual stones. Some spalling was noted between stones, and traces of a thick coating of a red painted or pigmented stucco were still visible in several areas.

The facade had as a decorative motif at least two recessed cruciform elements (Figs. 1.5, top, 1.6, 1.7) with shaped stones projecting outward from their centers. In the motif near the eastern end of the facade this projecting stone had begun to slump or pull out of its niched recess. Secondary repair work had been performed by the addition of several unworked stones and stucco which had been placed under the center stone in such a manner as to aid in its support (Fig. 1.7).

Structure 2 had been completely buried first by the construction of Structure 3 and then of Structure 6, so that when discovered only a slight amount of the facade was visible. The facade appeared to be in excellent condition and would warrant additional investigation at a later time.

Structure 3

Structure 3 was a vaulted structure of at least three rooms. The present floor plan is that of a large L. However, is it suspected that a large segment of this structure is
buried or has been destroyed. Its construction postdated that of Structure 1, as it was partially constructed around that structure.

Room 1 was the short segment of the L. It was about 2.0 by 3.8 m, with two doorways (Fig. 1.8). One door exited into the plaza area, while the other entered into Room 2 (Fig. 1.9). Both doorways were capped by plain stone lintels. The inner walls were of block masonry, with secondary construction running the length of the room on one side. This construction postdated the original room construction, yet it was well tied in with the original masonry by an evident removal of the lintel over the doorway to Room 2 and a complete reworking of that side of the door (Fig. 1.8A, B). In replacing the lintel several modifications were necessary. The most striking was the short course of four nicely faced stones, which were placed over the lintel itself. This secondary construction greatly constricted the floor space of the room and, as it projected to at least the top of the doorway, it could not have been
Figure 1.9. Doorway connecting Room 2 to Room 1 of Structure 3. The Doorway at the other end of the passage opens into the central plaza.

used as a bench. This was perhaps a stabilizing support for the room when Structure 6 was built over Structure 3.

In recent times parties had excavated a large segment of the vault facing on the side of Room 1 toward Structure 15 (Fig. 1.8A). The excavation had penetrated to the outer facade of Structure 3 at this point. The outer wall of the structure exposed was made of faced and slightly tenoned stones, and a segment of an outer beveled molding was in evidence above the spring of the vault.

Room 1 was not cleared to the original floor level, which is now buried under more than a meter of dirt, dust, and loose rubble.

The vault of Room 1 was of a slab type of masonry construction. Forming this vault were stepped ledges, similar in part to the vault construction of Room A in Structure 11 at Ake (Roys and Shook, 1966:20-21). The actual face of the vault in Room 1 had several rounded holes left from the original poles which had been placed within the vault. Due perhaps to secondary construction and the partial destruction of the vault face, no exact relationship between post holes from one vault face to the other was traceable. No plaster or stucco was present upon either the vault faces or the walls of the room.

Rooms 2 and 3 formed the long segment of the L in the floor plan of the structure. Wall and vault construction was similar to that in Room 1. A small air vent was noted in the end of the vault in Room 2 near Room 1. Room 2 faced toward the sacbe, and would have opened into the central plaza. The remains of two doorways were present near each end of the room. Perhaps originally three or four doors were placed on this side. Little remained of Room 3, and it appeared that a portion of the room was destroyed in the building of Structure 6.

A test unit was excavated in front of the doorway to Room 1 in Room 2 of Structure 3. This unit encountered the floor of the structure at an elevation 70 cm above the level of the central plaza. This would have perhaps necessitated some form of steps for both Rooms 1 and 2, and possibly for Room 3. No other features or floors were found in this unit.

The outer walls of Structure 3 were visible only at certain points. Generally, the construction was of well-faced and slightly tenoned stones. Corners were visible, and consisted of well-worked and faced large blocks. At the point where Structure 4 was built against Structure 3, a segment of a recessed cruciform element was visible on the outer facade of Structure 3. In all respects, this element was the same as those on Structure 2.

Remains of a broad, badly destroyed stairway was found on the side of Structure 3, which faces toward the sacbe. The risers were composed of single courses of large faced blocks or faced and slightly tenoned stones. Individual riser and tread measurements varied considerably. Additional steps are perhaps buried, but were not found and therefore not recorded on the map (Fig. 1.4).

A secondary wall and fill area between Structure 3 and Structure 15 was indicated by a narrow wall which rested on the curved terrace of Structure 15 and continued along the outside wall of Structure 3 until it came into contact with the second level of the substructure of Structure 15. This wall was of rude stones with only slight facing. The space between Structure 3 and Structure 15 was filled with loose rubble, perhaps laid down at the same time. Passage between these structures would have been quite restricted before this filling occurred yet it would have been possible. Perhaps the filling of this space was done in conjunction with the building of the secondary wall in Room 1, and both were designed to aid in the preparation of a stable foundation for Structure 6.

Structure 4

Structure 4 was located on one side of the central plaza. It was built after Structures 2 and 3 and prior to Structure 6. The structure consisted of a single long room with three doorways facing toward the sacbe (Fig. 1.4). Walls were constructed of well-faced blocks, some with slight tenons. The three doors were capped with well-worked plain stone lintels, and the vault was of slightly worked slabs with extensive spalling (Fig. 1.5, bottom). No plaster or stucco was found on the faces of the walls or vault, and no vault postholes were visible.

The structure is presently filled with rubble to about the spring of the vault (Fig. 1.10). This seemed to have been done at the same time that a rubble-filled area was built in front of the structure. This process had resulted in complete burial of the structure, and access was possible only from an exposed section of the vault on the easternmost end of the structure. The process of covering
over Structure 4 could well have been in conjunction with the building of Structure 6. At that time certain modifications were made in this group of Structures (2, 3, and 4), and perhaps an additional structure was planned to be built over Structure 4 and the rubble-filled area in front of that structure. This apparently never materialized, and perhaps the top of Structure 4 and its accompanying rubble area were utilized as a large open space. Due to all the construction and filling around Structure 4 it was not possible to secure any information in regard to the outer walls of the structure.

During the process of recording of the vault and wall, fragments of three heavy grooved metates were discovered as part of the rubble fill within the structure. These metates, Nos. 22, 23, and 24 were recorded but not removed from the vault.

Structure 5
Structure 5 was represented by an inside corner of a vaulted building. Fragments of the walls, which formed this corner protruded above the surrounding debris, and were traceable only a few meters in either direction from the corner. The walls were constructed of block masonry with heavy spalling, and the vault was composed of slightly worked slabs.

A 1 m square test unit, Unit 6, was excavated in the corner of Structure 5. This unit encountered a 6 cm thick plaster floor in excellent condition at a point 251.0 cm below the surface. This was the original floor of the structure. The plaster rounded upward at the junction of the floor and wall for a height of about 9.0 cm. The floor level of the structure was of the same elevation as the level of the plaza. Under this floor were three additional plaster floors: a 4 cm thick floor 277 cm below the surface, a 4 cm thick floor 285 cm below the surface, and a 5 cm thick floor 295 cm below the surface. Bedrock was encountered 36.0 cm below the last floor. It was not possible to determine the construction related to these earlier floor levels, although it was apparent that at least one floor was of a structure much larger than Structure 5 and the construction related to this floor would have occupied some of the space taken by the present substructure of Structure 10. As all of these floors would be below the present level of the central plaza, some could have been part of an original plaza level, which was sloped to allow proper drainage from the plaza area.

Structure 6
Structure 6 rested on top of Structures 2 and 3, much in the manner of a second story. The structure was built later than Structures 2, 3, 4, and 5, and perhaps its construction aided in the partial destruction of Structures 2, 3, and 5.

Although little remained of this structure, it appeared to have run on an axis parallel to Structures 2 and 3. Access to the structure was probably from a stairway leading from the plaza, and doorways perhaps faced in that direction. It is possible to estimate from small segments of existing walls that the structure had at least 3 rooms and was about 13.7 m long and 5.5 m wide. Walls were of faced blocks and slightly tenoned and faced stones, with the average wall width about 60 cm. The maximum height of any existing wall segment was about 40 cm, with most wall fragments represented by a single course of stones. Vault debris indicated a slab type of vault construction.

Structure 7
Structure 7 was a vaulted structure of four rooms, which formed the south side of the plaza on the acropolis. At the time of investigations, the structure was buried to about the spring of the vault. Several wall segments were exposed, and at least three lintels were present among the rubble. The floor plan was that of two long parallel rooms, with smaller rooms the width of the structure located on each end. The long parallel rooms probably had two or three doorways, with one room opening into the plaza and the other toward Structures 12 and 14. The two end rooms had centrally placed doors facing along a general east-west axis.

The inner walls of Structure 7 were composed of block masonry with a high amount of spalling. In the outside walls, slightly tenoned and well-worked stones were present. Although these tenoned stones were well faced and had a definite tenon present, just as in the case of Structure 8, they were not as well-formed as would be those from a Pure Florescent context. The center wall of the structure averaged about 100 cm thick, whereas the outer walls were about 80 cm thick. Only two doorways were located, one an outside doorway in the western end.
room, and the other an inner door connecting the two long center rooms near the eastern end of the structure. The outer doorway was 62 cm wide and was perhaps covered with a massive stone lintel, which was located at the northwest corner of the structure. The inner door was still intact and was 49 cm wide, capped with a short stone lintel only slightly wider than the doorway itself. A presumed air vent, 26 by 32 cm, was located just below the spring of the vault and connected the center rooms at a point almost in the center of the structure.

The vault was constructed of flat slabs, with a course of larger, slightly worked thick slabs located at the point of the spring of the vault.

A test pit, Unit 7, was excavated along the center wall in the room, which faced the plaza. This unit encountered the floor of the structure at a point 30 cm above the level of the plaza, and a second earlier floor was present 39 cm under this floor.

In a partially stone slab lined and stone capped tomb was an adult female burial in a poor state of preservation (Fig. 1.11). This tomb had been placed under the floor of Structure 7. However, in the construction of the crypt the second floor had been penetrated and the capstones for the tomb actually rested upon this second floor. This arrangement resulted in a less well-prepared tomb than is normally the practice in Yucatán, for in this situation the weight of the tomb capstones was absorbed by the floor rather than by the prepared sides of the tomb. The burial rested on the right side with knees drawn upward in a partially flexed position. The tomb itself was at a right angle to the center wall of the structure and had not been constructed to the full length of the individual, which necessitated the flexed position. Inside the tomb, dirt had been placed completely filling the crypt. The burial had a medium slate basal angle break tripod plate inverted over the skull, and mixed in the soil around the skull and chest region were 175 bone, marine shell, and stone items. These will be more fully described in the sections to follow on artifacts, but briefly they consisted of 1 perforated deer tooth, 4 stone beads, 1 small perforated stone disk, 129 shell beads, 34 shell tinklers, 2 shell ear plug backings, 1 perforated shell disk, 1 perforated small shell rectangular object, and 2 unworked shell fragments.

Tooth mutilation was present on both the upper and lower incisors and canines of the burial (Fig. 1.11, bottom). This mutilation, following Romero’s (1960:157) classification, would be that of:

\[
\begin{align*}
A4 & \quad A4 & \quad B5 & \quad B5 & \quad A4 & \quad A4 \\
A2 & \quad A2 & \quad B4 & \quad B4 & \quad A2 & \quad A2
\end{align*}
\]

Some of this filing was not quite the same as in the examples illustrated by Romero. The examples classified as A4 had not been shortened quite to the extent normal for this type, but rather the occlusal edge had been reduced to the notch area found on the central incisors.

Structure 8

Structure 8 was a single room vaulted structure, which was constructed as a later addition to Structure 7. In its construction, walls were placed only on three sides with the fourth side formed by a portion of the outer wall of Structure 7. This arrangement, depending of course on the skill of construction, would perhaps not have been as stable as one would wish. As the walls of Structure 8 were not bonded in any way to the wall of Structure 7, and were resting only partially against the wall of Structure 7, it would seem that any settling of Structure 8 may have resulted in the opening of a gap at this junction and the later collapse of the vault.

In any case, when first recognized, Structure 8 consisted of little more than a mound of rubble. The walls were constructed of nicely finished tenoned stones, which had been seated in a concrete and rubble wall core. The average wall thickness was 60 cm and the present buried wall height was about 1 m. Fragments of a doorway were
present on the side facing toward a small open-sided plaza formed by Structures 7, 8, 12, and 14. Vault debris consisted of worked slabs. Several beveled wall molding stones were also found around the structure.

A test unit, Unit 5, was excavated within Structure 8. This unit encountered a 7 cm thick plaster floor in excellent condition 100.0 cm below the present wall height and about 60 cm above the small plaza to the front of the structure. Under this floor were two earlier floors, a partially intact plaster floor 28 cm below the floor of the structure with traces of a red pigment on the plaster, and a plaster floor in excellent condition 10.0 cm below the second floor.

An L-shaped altar or bench had been constructed as perhaps a later addition to Structure 8 (Fig. 1.12). This bench ran the width of the room and then 1.05 m toward Structure 7. The bench was constructed of regular courses of tenoned and faced stones smaller than the stones in the walls of the structure. The core appeared to have been of concrete and rubble, with a plaster covering capping the feature. The tomb or cache, which is perhaps buried within the core or under the floor beneath the bench, was not investigated at this time.

A short distance to the west behind Structure 8 was a short wall segment flush with the present ground surface. This wall was 2.5 m long and 0.45 m wide and of block masonry construction. Test Unit 3 was placed on the southeast side of this wall and Test Unit 4 on the opposite northwest side in an attempt to secure information about the structure which had existed there. Both units encountered floors in poor condition about 31 to 32 cm below the top of the wall at that point. Little more can be added, except that it appeared that this wall segment was the remains of an inner wall of a late Early period vaulted structure. A fragment of a heavy grooved metate, No. 19, was located near this wall section.

Structure 9

Structure 9 formed part of the western side of the plaza on the acropolis. This was a one-room vaulted structure on a stepped substructure, which faced toward Structure 10 across the plaza.

Little remained of the structure. It had collapsed, falling mainly into the plaza and toward the entrance of the cave of X-Kukican. Some low wall fragments were still standing, although most were only one course high. These walls provided a partial floor plan of a single room structure with an estimated length of about 5.85 m and a width of about 3.40 m. A doorway with nicely faced jamb stones faced toward the plaza. One jamb stone had fallen, thus the reported width of the doorway, 110 cm, may be an overestimate as it is based on a measurement with the fallen jamb stone replaced. Walls of the structure were constructed of faced blocks, some with slight tenons. The vault, judging from the rubble remains on the talus slope of the structure and some vault stones on the summit of the structure, was of slab construction. Fragments of what appeared to be a broken stone lintel were found on the front of the substructure and in the plaza itself.

The present height of the rubble on the summit of Structure 9 is 5.75 m above the plaza level. Traces of a nearly destroyed stairway were located on the side of the substructure facing the plaza, but no portion was intact enough for measuring.

The substructure was of stepped levels, with at least four levels present on the back side of the structure. The northeast side of the substructure joined with the base of Structure 15. The primary or first level of the substructure of Structure 9 was built of large blocks only slightly faced on their exposed side. Most of these blocks rested on their sides and courses were irregular, with little attention paid to corner construction. The other levels were better constructed with faced blocks, some slightly tenoned, and set upon edges in regular courses with nicely faced non-tenoned corner blocks.

On the face of the substructure toward the plaza, a
fragment of an earlier structure was visible. This structure appeared to be in an excellent state of preservation, and would seem to compose most of the core of the substructure of Structure 9. The exposed segment was an outside corner near the medial or upper molding of the structure. It consisted of a wall constructed of true block masonry with heavy spalling and still covered in part with a plaster coating partially painted with a red pigment. A slightly protruding worked slab extended about 7 cm out over the wall and formed the molding mentioned above. The elevation at the top of this molding was 4.6 m above the plaza level.

**Structure 10**

Structure 10 formed a portion of the central plaza upon the acropolis. It once consisted of a vaulted structure of perhaps only one room located on a stepped substructure. Unfortunately, the structure had collapsed, and most of the masonry had cascaded down the front of the substructure into the plaza or down the back onto the substructure upon which Structure 11 rested (Fig. 1.13). During this action, much of the substructure was destroyed or buried. This destruction was so complete that the summit of the present rubble mound is below that of the floor of the structure. The present height is 6.8 m above the level of the plaza.

A close examination of the talus remains located on all sides of the substructure revealed that the vaulted structure must have been constructed of block masonry walls with a slab type of vault. A large, almost completely buried stone near Structure 5 could have been a portion of a lintel.

Exposed on the summit of the mound were the remains of what had been a stone lined and capped tomb. This tomb had probably been placed under the floor of Structure 10. The tomb, when discovered, presented a disheartening sight; no capstones were present and a portion of the wall lining was missing, and the remainder had partially collapsed. This destruction had been so complete that it was not until almost the end of the field season that it was recognized as a tomb. At that point, when the workers were told to clean the crypt out to secure any artifact material, they questioned this decision, pointing out that this was nothing more than an old and barren tomb. Their statement proved to be correct, for evidently the first discoverer had been quite thorough in his or her actions. The tomb as outlined by the existing stone slabs was about 110 cm long and 40 cm wide.
Traces of a 2.5 m wide stairway were present on the side of the substructure facing the plaza. Evidently the stairs were on a steep ramp flanked by a 30 cm wide stepped balustrade. Measured steps had, upon average, 18 cm risers and 15 cm treads.

The remaining details of the substructure represented a stepped terrace base, constructed of large faced blocks with spalling. The fill and subsequent floored area behind and over Structure 4 covered all but two of these levels on that side of the substructure, while on the other sides, traces of at least three levels 80 to 100 cm wide and 100 to about 200 cm high were present. A fourth level was perhaps buried under the talus at the base of the substructure.

Structure 11

A large extension of the acropolis jutted out from the substructure behind Structure 10. This platform was 3.7 m lower than the level of the substructure, and was perhaps built as a later addition to the acropolis. A raised section of this platform, Structure 11, rested upon the southeast corner of the platform and extended along the edge of the platform for almost 15 m. Structure 11 was, then, a small raised platform, which rested on an extension of the acropolis. The structure was in a poor state of repair. Present remains suggested a long platform about 40 cm above the level of its substructure. The platform was defined by a single course of slightly faced stones set on their edges on the northeast side, and a double course of similar stones on the southwest side. No evidence of a superstructure was present, and, although numerous tenoned stones were scattered on the surface of the structure, it was believed that these originated elsewhere.

To the southwest of Structure 11 near the edge of the acropolis was a large area of dark soil. Upon the excavation of a 1 m square test pit, Unit 2, this deposit was found to contain a high quantity of ceramics (Fig. 1.14). Apparently this could have been a form of refuse dump used during late Early period or Pure Florentine times. If this is the case, then dumping occurred from the acropolis itself, for the deposit appeared to deepen near the retaining wall of the substructure of the acropolis.

Four heavy grooved metates, Nos. 9, 10, 11, and 21, were discovered around Structure 11 and in the soil deposit close by.

Structure 12

Structure 12 was a small, unvaulted single room structure located on the substructure of the acropolis between Structures 8 and 14. It was about 3.5 m by 2.0 m in plan, and rested directly upon the substructure. Walls were about 40 cm thick and 40 cm high, composed of block masonry with certain individual stones slightly faced. A single door, 55 cm wide, faced toward the southeast. The doorjambs were composed of single upright stones, while the walls were normally of two stones’ thickness. Judging from the amount of debris present, walls of this structure could have once stood to a height of about 1 m.

Structure 13

Structure 13 was an unvaulted structure of two rooms, which rested directly on the substructure of the acropolis south of Structure 9. The structure was 6.5 m by 3.5 m in plan, divided into two almost equal rooms by a 57 cm thick center wall. Outer wall thickness was 55 cm with a present height of about 30 cm. The walls were of block masonry, two stones thick, with individual stones slightly faced. A 52 cm doorway was visible in one room, facing toward Structure 7, with jambs composed of single blocks slightly faced. The original wall height, judging from the amount of rubble present, would have been about 50 cm.

Fragments of a heavy grooved metate, No. 18, were located to the north and east of the structure.

Structure 14

Structure 14 was located on the acropolis near the southeast corner of the main substructure. This and Structures 7, 8, and 12 formed a small plaza open on one side.

Structure 14 was an unvaulted, perhaps single room structure that rested on a low platform. Two doorways faced toward Structure 7, with the jambs constructed of slightly faced blocks. One door was 90 cm wide, the other partially destroyed so that no accurate width could be

Figure 1.14. Excavation of Test Unit 2, with a section of the standing wall of the acropolis substructure in the background (see Fig. 1.3, bottom). The material from this unit was sifted by a hand-held screen, as shown, since this deposit was relatively free of stone.
taken. Walls were of block masonry, about 32 cm wide and standing about 30 cm high. Judging from the present rubble, walls were not over 50 cm high.

The substructure was raised about 50 cm above the main platform. This was accomplished in two stages by a long step, which ran almost the length of the platform. The outer retaining walls were of slightly faced blocks. A wall, 2.7 m in length, intersected the platform near one end. This wall could have been of some earlier construction, or it could have been a part of a structure, which closed the small plaza located in front of Structure 14.

A test unit, Unit 8, was excavated within the structure near one doorway. This unit disclosed two floors in poor condition, 40 cm and 57 cm below the present rubble level. The 40 cm floor was the floor of Structure 14, while the deeper floor was from earlier construction.

Two heavy grooved metates, Nos. 20 and 27 were found around the structure. One had been reused as a wall stone within Structure 14.

**Structure 15**

Structure 15 formed a portion of one side of the plaza. It was the highest structure in the Archaeological Zone, rising 10.45 m above the plaza level. The present remains represented a massive stepped substructure with a vaulted superstructure. The vaulted structure had collapsed and much of the substructure had been destroyed.

The substructure was faced on one side by the substructure of Structure 9 and on another side by the complex which represents Structures 2, 3, and 6. One of the other sides faced Structure 19, and although no traces of steps were visible on any side, this would have been the only logical position for a stairway. The remaining side rested off the substructure of the acropolis and was the best preserved of any side. On this side, traces of at least three stepped levels were visible, although at least five perhaps existed at one time. The walls which composed the levels of the substructure were of heavy block masonry (Fig. 1.15). The majority of these blocks were quite rough, with very little facing. Several presently unrelated walls were observed on the substructure, which may have belonged to earlier construction now buried within the substructure. These walls were all of true masonry with heavy spalling between stones.

Some secondary construction was also noted on the substructure. The best defined section was the lowest level, which ran into the plaza from Structure 9 and 15, turned by means of a rounded corner, and stopped against the outside wall of Structure 3. This construction was of smaller and more skillfully faced blocks than the other levels of the substructure, and the rounded corner was constructed of well worked and rounded faced blocks. The sides of these blocks were slightly beveled to allow for the curvature.

Little remained of the structure itself. Evidently, most of the summit of the substructure was that of the exposed open rubble which was once below the floor of the superstructure. One low wall segment rested on open rubble near the southeast edge of the summit and stood about 65 cm high when debris was cleared from its base. The wall was of slightly faced slabs present as a basal course. This wall could have been the remains of the superstructure, an earlier construction at this point, or a final step of the substructure, which formed the base of the superstructure.

Structure 15, from rubble indications, was constructed of block masonry walls with a slab type of vault. Fragments of what might have been two stone lintels were located along the talus slope of the substructure. A fragment of a heavy grooved metate, No. 8, was located near the summit of the structure and was perhaps part of the original rubble fill of the substructure.

**Structure 16**

Structure 16, together with Structure 20, was located on a later addition to the substructure of the acropolis. This extension protruded in a northeasterly direction from the acropolis next to the point where the sache joined the acropolis. The platform had several exposed low outcrops of bedrock and apparently was constructed by leveling a defined area by covering the bedrock. In such construction, the bedrock would act as a major source of natural fill. The walls of this substructure were of block masonry with only slightly faced individual stones. One heavy grooved metate, No. 7, was located as a wall stone in the substructure.

Structure 16 was a single room unvaulted structure, about 4.2 m wide and 7.0 m long, which rested directly on the substructure extension. A single doorway faced Structure 20, and was in rough alignment with a door in that structure. The walls were constructed of block masonry, with the walls two stones thick and the wall blocks resting on their sides. The average wall width was 50 cm and the door width 50 cm.

Two walls extended at right angles toward the southeast

![Figure 1.15. North face of Structure 15, with inner retaining walls clearly visible near the northeast corner.](image-url)
from the structure. These were constructed of upright slabs and were about 50 cm wide. They could have formed a three sided room, 2.6 m by 1.5 m, which might have been used as a crude addition to Structure 16, or they may have related to some earlier construction on the platform. In any case, the construction of these walls was inferior to that of either identified structure located on the substructure.

**Structure 17**

Structure 17 was a small, unvaulted rectangular structure located off the acropolis. It rested directly upon the ground with no indication of a platform. The structure measured 4.3 m long by 3.9 m wide, with standing walls to about 70 cm high. The walls were composed of large unworked stones, some set upon edge, with larger stones at the visible corners. Average wall thickness was about 40 cm.

Structure detail was not clear due to disturbances, and no doorway was visible. A break in one wall could well have been a door, which if set at this point would have faced Structure 11.

A natural round hole in exposed bedrock was located several meters away, and was used during the field season as a water source. It was 30 cm in diameter and 120 cm deep, with a flat unworked slab of limestone used as a present-day cover for the opening.

**Structure 18**

Dominating the southwestern side of the acropolis was a large raised platform, Structure 18. It rose 5.32 m above the level of the central plaza, and 5.95 m above the acropolis level in front of the structure itself. The entrance to the cave complex at X-Kukican was located to the immediate north of the structure, and many of the stones found around this entrance were from the retaining walls on that side of the structure.

The retaining walls of the platform were in a ruined state except for a short segment on the south side. This wall segment was constructed of large, slightly faced blocks with moderate spalling between the stones. No traces of steps were observed. However, the easternmost side of the structure was the least well preserved of any side, and this face would have been the most logical position for gaining access to the structure from the acropolis. Judging from the extensive rubble remains, many architectural features once present are now destroyed or buried.

The top of the structure extended up the ridge reaching a level position. As such, there was no direct or straight line forming this side of the structure, but rather a curved line, which roughly followed a contour level.

Present in front of the structure on the substructure of the acropolis were two walls, which ran roughly southeast by northwest from the edge of the acropolis platform to the base of the present talus slope of Structure 18. One of these walls was evidently the remains of what had once been the edge of the substructure of the acropolis. The wall at present barely extends above the surface of the platform. This wall had then been subsequently built into the substructure by an extension of the platform in a southwesterly direction. The other wall, located northeast of the previous wall, was a simple course of faced stones almost completely buried in the earth and stone of the surface of the substructure. It was impossible to decipher its purpose or relationship, although it appeared to be a portion of the basal course of a long unvaulted structure.

**Structure 19**

Structure 19 occupied a position on the acropolis at the northwest corner of the substructure. The present remains, although badly disturbed, indicated an unvaulted structure of four rooms, with the floor of the structure resting directly upon the surface of the substructure. The walls were formed by a single course of unworked or slightly worked blocks and slabs set upon edge. The average wall thickness was 40 cm and the maximum wall height at present is about 30 cm.

The floor plan indicated one almost complete room and portions of three other rooms. Evidently two rooms faced or opened toward Structure 15, and the two back rooms faced the northern edge of the platform. Traces of one doorway were visible, with little distinction between the doorjamb and other wall stones. No interior doors were visible.

Several tenoned stones were found on the surface around the structure, and were perhaps from the nearby plaza complex. Four heavy grooved metates, Nos. 55, 56, 4, and 26, were found scattered in or near the structure.

**Structure 20**

Structure 20 was located in front of Structure 16, and both rested on the same substructure (see Structure 16 for a description of this platform).

This was an unvaulted one-room structure, with two doors facing the main acropolis and one door facing Structure 16. The doors facing the acropolis were 80 cm wide in one case and 100 cm in the other. Doorjambs were of partially faced blocks. The door leading to Structure 16 had been blocked by secondary construction of upright slabs. Walls were of block masonry, similar in construction to Structure 16, and average wall width was 50 cm. The structure was 8.9 m long and 3.2 m wide, with only about 70 cm of space between Structures 16 and 20. From the floor level and the amount of rubble remains present, walls on both structures were originally about 50 cm high.

A test unit, Unit 10, was excavated near the center of Structure 20. This unit disclosed evidence of what had once been a plaster floor at a level 45 cm below the present mound rubble, or at the same level as the substructure. No other features were observed in this unit.
Structure 21

Structure 21 was located off the acropolis and to the west of Structure 18. It appeared to be the remains of a small apsidal house, about 3.7 m long and 2.5 m wide. The structure rested directly upon the ground with no evidence of a platform base. Walls were composed of a single course of unworked stones, with average wall width about 40 cm. Judging by the amount of stone debris present, the walls could not have been much higher than 40 cm originally. A possible doorway faced toward Structure 18 and the acropolis. The structure was in a very poor state of preservation, and its description as an apsidal structure type could well be questioned.

Structure 22

Structure 22 was a low simple platform, 3.7 m by 3.9 m in plan. The floor of the platform was composed of a large number of small stones, and was about 30 cm above the surrounding terrain. No retaining walls were clearly visible due to past disturbances.

A few meters to the north of this structure was a small sinkhole which opened into a rounded chamber similar to that of a chultun. No evidence of use as such was noticed, and the floor of the chamber was covered with dirt and rubble debris.

Structure 23

Structure 23 was a low simple platform in a very poor state of preservation. Its size was about 3 m by 2 m on a side and the overall height was about 20 cm. No retaining walls were visible, although a large amount of debris in the form of large unworked stones was scattered over the mound. Two large, heavy grooved metates were found directly to the north of this structure.

Structures 22 and 23 were both located on a small natural elevation along the ridge to the west of the acropolis. This unit—the structures, metates, and possible chultun—perhaps represented some form of small individual domestic complex.

Structure 24

Structure 24 was a small, low simple platform, about 3.0 m by 2.5 m in plan. It was about 30 cm high, with no evidence of retaining walls along the platform edge. The structure was badly disturbed, and little remained except a low mound of small stones and some scattered larger unworked stones.

Structure 25

Structure 25 was a small, low simple platform, about 5 m long and 2 m wide, similar in condition to Structure 24. Its height above the surrounding terrain was about 20 cm.

Structure 26

Structure 26 appeared to have been a small, low simple platform about 30 cm high and 3 m square. Only scattered small stones and some few larger stones marked its location at present. These three structures, 24, 25, and 26, were located off the acropolis toward Bluff Shelter 3. Of these, Structure 23 was the most thoroughly disturbed. Together they perhaps formed a small domestic unit or complex, similar to that of Structures 22 and 23.

Structure 27

Structure 27 was located 266 m along the sacbe leading from the acropolis. The construction was that of a 1 m high and about 9 m square platform which had been placed against the easternmost side of the sacbe. No steps were visible, nor were any construction features noticed upon the surface of the platform. Most of the outer retaining walls had fallen, but they appeared to have been constructed of partially faced blocks.

SUMMARY OF THE SURFACE RUINS

The major surface ruins consisted of a large, yet compact acropolis, with all the recognized architectural construction dating from a period approaching but not reaching the Pure Florescent. Many of the details favor placing the major occupation somewhere between the late Early period and the Pure Florescent, or rather, in a Transitional period.

In the architecture of the vaulted structures, a general trend was noted away from the large stone block masonry construction which is characteristic of the Early period. At X-Kukican, walls were built in part by pecked and by shaped stones. There was also a general tendency toward medium tenoned wall stones, especially on the outer facades. Structures 3, 7, and 8 are excellent examples of structures with tenoned wall stones, which although well made, do not seem to correspond to typical Pure Florescent tenoned wall stones.

Vault construction consisted of courses of slightly shaped vault stones in a stepped arrangement, with considerable spalling in the vault facing. Doorways were capped by plain monolithic lintels, some quite massive. The facades were plain, except for recessed cruciform decoration upon Structures 2 and 3 and for traces of painted and sculptured stucco found out of context in several locations. No architectural carved stone decoration was found on any of the structures investigated or at any point on the acropolis.

Of the unvaulted structures, those located on the substructure of the acropolis were quite similar to those recorded from the surrounding area. They were primarily one- to four-room rectangular structures, although one was perhaps apsidal in form. Wall construction was normally a double wall of slightly faced stones set upon edge. The height of these walls, as estimated from the extent of the rubble remains, would have never exceeded one meter. The roof of this type of structure would perhaps have been thatched, although no traces have survived.
The platforms without superstructures may be categorized as low, simple, and under 50 cm high, with the exception of Structure 18 located at the acropolis and Structure 27 off the sacbe. These two platforms, besides their greater height and size, showed some finer skill and care in outer wall face construction.

When the monumental construction reached its height, the acropolis complex must have been an impressive sight upon its hilltop location. The sacbe revealed a connection with at least one of the adjacent sites during this time, and the limited number of small structures in the vicinity would have been huts and milpas scattered around the religious center. The permanent population at the acropolis perhaps would have been supported from these, and also from the small structures located in higher concentration on the more level terrain around Xtancia-Kaa.

THE BLUFF SHELTERS OR CUEVAS ABIERTAS

During the investigation at the Archaeological Zone of X-Kukican, three bluff shelters with indications of aboriginal activity were discovered. These were all evidently small solution caves, although at the present time passage is restricted after a short distance from the entrance by the deposition of earth and stones. Bluff Shelter No. 3 did have one low open passageway, which wound about 15 m into the limestone stratum. However, cultural material was not present beyond the entranceway of this passage.

Several other smaller fissures, caves, and small sinks were in evidence within the mapped area; yet, except for one to the southwest of Structure 21, all were too small or shallow for human entrance. The example near Structure 21 was little more than an eroded crevice about 4 m long and contained no indications of aboriginal use. A 2 m long large rattlesnake was extracted from this crevice by the work crew prior to our entrance, and the men quickly assigned the name of “X-Kukican” to this unimportant hole in the ground. With the slight traces of a musty smell within the crevice upon entering, one was reminded of Mercer’s (1896:144) statement as to the experience of Mr. Corwith in the cave of X-Kukican itself (see Part 1, Background).

Of the three large shelters investigated, Nos. 1 and 2 were located at the northeast and northwest edges of the acropolis complex respectively, and Shelter No. 3 was about 165 m northwest of the plaza complex on the acropolis.

Bluff Shelter No. 1

Bluff Shelter 1 was a large shelter, which sloped directly from about a 15 m wide mouth (Fig. 1.16) to a large open room directly under Structure 1. Several small niches opened in the walls of the shelter and one small crevice in the back wall extended about 8 m. Other than these the area was quite open to upright passage and was well lighted. The floor sloped down from the entrance at about a 45° angle, with several more level areas present near the back wall.

The earth floor was highly irregular because of the exposed bedrock and large stones and the surface was littered by various architectural stones and general debris. There were several large dry cave formations, although at present little of the shelter is active from this standpoint.

Two “bird blinds” quite similar to those previously reported in Yucatán (Mercer, 1896; Hatt et al., 1953) were located along a more level spot within the shelter. These were small, round walled enclosures less than a meter high, constructed of dry stone masonry walls. Little care had been taken in their construction, and the wall stones had evidently been gathered from rubble present on the floor of the shelter. Each of the “blinds” had next to it a heavy grooved metate, Nos. 16 and 17, which had been placed upright and situated under natural drip positions in the ceiling of the shelter. Both metates contained travertine deposits from their use as water basins. Today small birds are constantly present within the shelter during the heat of the day, and make frequent trips to drink from one of these metates, which still collects a small amount of water. Two other metates, Nos. 14 and 15, were represented by fragments found on the entrance slope and an unidentified stone object was found near one of the “blinds.” This item was a slightly faced wall stone, which had on one side a worked rounded depression about 11 cm in diameter and 5 cm deep.

On the surface of the shelter were found numerous ceramic sherds, bones, and some artifacts. In more recent times, several cut poles had been stacked at points around the walls, perhaps to allow them to season, and a very few rusted tin cans marked additional recent intruders.
A surface collection of material, Lot Sample PX-213, was made, and two test excavations were placed in the level spots in front of and behind the stone “blinds.” One of these, Unit 11, was a one m square test, and was excavated to bedrock at 160 cm below the surface. The profile was quite uniform and was composed of dark soil, stones, and dust to 40 cm below the surface. From 40 to 48 cm a faint regular line of white ash or perhaps sascob (deteriorated limestone) was present over most of the unit. The profile under this deposit was similar to the first 40 cm of the unit until 100 cm, where a red soil and stone stratum continued to bedrock.

The second excavation, Unit 12, was a 2 by 1 m unit (Fig. 1.17). Except for the first 20 cm of dirt and dust, the profile was a uniform mixture of dark soil and stones. Bedrock was encountered at 125 cm below the present surface of the shelter.

**Bluff Shelter No. 2**

Bluff Shelter No. 2 was a small cave located near the corner of the substructure of the acropolis at Structure 19. The shelter had adequate natural lighting and contained a thick smooth soil floor with few stones present on the surface. Near the back of the shelter, the roof curved in a small dome, and only at this point it was possible to stand erect. The remainder of the shelter presented little difficulty for most of the local workers, but the low roof prevented erect posture for most of the field party.

No cultural indications were present on the surface of this shelter. A large, irregular jumble of unworked stones was located outside and about 10 m to the east of the entrance and, although it did not appear to be natural, no form or function was suggested by the irregular shape. A short, relatively recent dry stone masonry wall extended from the corner of the acropolis near Structure 19 for several meters in a direction generally towards the shelter, but it did not span the necessary distance and seemed to have been abandoned before any definite plan had been accomplished.

Two units, Units 13 and 14, were excavated in the shelter. Unit 14 was discontinued before reaching bedrock, while Unit 13 encountered bedrock about 3 m below the surface. Profiles revealed little more than a homogeneous section of dark brown to red earth and stones.

**Bluff Shelter No. 3**

Bluff Shelter No. 3 was located about 165 m away from the acropolis on the same general ridge and at about the same elevation as the acropolis. The shelter was located under a wide, eroded high overhang within a large sink. This sink had high vertical cliffs on all but the north side, where a low, rather recent, dry stone wall had been erected to form what had been a convenient cattle or horse enclosure. The floor of the sink was fairly level with some large breakdown and boulders located near the overhang. The sink contained extensive vegetation, due to the high moisture content of the soil floor.

Local informants reported several versions of ghost stories connected with this sink, all of which centered on noises and voices coming from the cave late at night. Story also had it that this cave connected with the cave of X-Kukican, and that it was possible to enter at this sink and exit in Bluff Shelter No. 1. The local name for the shelter seemed to be X-Kukican, which may well be a name that covers all caves and sinks in the area. A low narrow passageway did exit from the overhang, but it only extended about 15 m in a winding manner. No indication of prior human activity was noticed much past the entrance of this passageway.

Eight heavy grooved metates, Nos. 39, 40, 42-44, and 46-48, were found within the sink. Several of these were made on large unmodified stones and others on exposed bedrock or large breakdown. Two grooves were found together on the same large unmodified stone near the center of the sink. Three other features may well have been metates. Two of them, Nos. 41 and 49, were small squared depressions about 5 cm deep found on large flat stone outcrops along the wall of the shelter. The other, No. 45, was a depression about the same size as the deep groove on most metates, but only 4.6 cm deep. This could well be the genesis of a heavy grooved metate, not used to the extent normally seen in most examples.

A single 1 m square test unit, Unit 15, was excavated near the back wall of the overhang. This unit struck large stones or bedrock at about 15 cm below the present ground surface; however, a small crevice continued to a depth of 60 cm. At this point, the crevice leveled out and extended toward the back wall of the shelter. Resting in

![Figure 1.17. Excavation of Test Unit 12 in Bluff Shelter No. 1. “Bird blinds” are visible to the rear.](image-url)
the level section of the crevice was a small cache, Lot No. PX-12, which consisted of two small, unslipped ceramic vessels, a chipped and ground flint celt, and a modified marine shell.

Summary
The three bluff shelters investigated at the Archaeological Zone of X-Kukican contained indications of previous human activity in limited degrees. Bluff Shelters Nos. 1 and 3 had the greatest evidence of activity, with ceramic representation indicative of Formative to late Early period or Pure Florescent times. The large number of metates present in Bluff Shelter No. 3, some too large to move, would tend to suggest a population at or near this shelter which frequented the locality to prepare corn or some other similar item. Bluff Shelters Nos. 1 and 2 were in such proximity to the acropolis that they were perhaps used by individuals living there or when groups visited or massed at the complex.

No connecting passageways were found between any of these shelters, and there is some doubt that any such passage ever existed.

THE CAVE COMPLEX
The entrance to the cave of X-Kukican was located just off the western edge of the acropolis. This entrance opened from the side of a low depression in what appeared to be a fault line (Fig. 1.18). After the field party had cleared the entrance of the stones placed there to guard against the entry of unauthorized persons, two days were spent in the cave stringing electrical lights, which were powered by a gasoline-driven portable electric generator. In this operation, the power lines and lights were arranged in such a manner as to supply a relatively constant light source for what was then considered the area of major aboriginal activity. Other lights were strung on poles with extension cords and could be therefore moved and placed where necessary. This mobile arrangement provided much needed independent light for any operation undertaken within this section of the cave complex. Unfortunately, the lines carried to Yucatán proved to be only long enough to extend to Room 15, and time was not sufficient to secure and lay additional lines when they were later needed. The lines also proved to transmit a small electric shock to the unwary after a few weeks, due in part to the high humidity and to the general wear and tear given them by the rough and often sharp limestone breakdown.

A basic two-fold plan of action was pursued within the cave, the preparation of a detailed map of the floor plan and elevation, and the recording of features of an archaeological nature. The first step was to explore the cave complex to its fullest by various methods which included the laying of string, chalk, and carbon arrow markers (and sometimes blind fumbling guided by what remained of reason after six hours underground). In all, after exploration 907 m of passageways were mapped. This exploration, although thorough, does not exclude the possibility of unexplored passageways or areas within the cave complex. As the majority of caves in Yucatán are considered two-cycle solution caves (Pearse et al., 1938:9-10), and X-Kukican seems to be no exception, there exists a chance that many of the small insignificant-appearing cracks and holes may open into large chambers. Needless to say, in our short preliminary exploration it was not feasible to investigate all such possibilities.

The mapping of the cave complex was accomplished with a steel tape and a Brunton compass set upon a small folding and revolving tripod. Traverses were surveyed to establish stations in the various rooms, and from these stations detailed measurements of the floor plan were taken. During this procedure, elevations and ceiling heights were established to provide a vertical cross-section of the main axis of passageways.

In conjunction with this process, various features were recorded and mapped. These features included human skeletal remains, concentrations of ash deposits, small caches, intact vessels, and various painted or carved designs upon the walls and ceiling of the cave. In the medium of painted elements all were either negative or positive representations of human hands. This type of artistic expression in itself is not uncommon in the Maya area, but some of these hand designs are unusual in that both hands of an individual may be shown, or both hands together supporting a small stick-like object. The majority of the hands depicted were, however, the typical open palm hand, and from the size evidently represented.
a range from adolescent to adult. Hand designs were recorded from Rooms 2 and 15 within the cave complex.

In the carved decoration various methods of execution were used. The majority of these features were discovered either in Room 15 or at the entrances of passageways into this room. The walls and ceilings of this area are composed of a soft sandy limestone, with a hardness of about 2 to 2.5 on the Mohs scale. Designs could therefore be scratched or incised into exposed wall surfaces with little or no difficulty. The design elements covered geometric motifs, human and animal figures, and unrecognizable scratching and doodling. The closest parallel expressions in the Maya area to these carvings from the standpoints of technique or subject matter are perhaps graffiti found on plaster or incised doodling on ceramic items. In the recording of the carved and painted features, a movable frame with grid lines 4 cm apart was used as a portable guide. This method worked rather well, as accuracy could still be maintained while the time spent on each feature was minimized.

In the exploration of the cave to Room 15, the party found remains of human passage within the passageways. Several scattered and poorly preserved human burials were also noted within various chambers, and a continuous array of broken ceramic remains littered the floor. The more heavily deposited ceramic material appeared to follow along a faint trail, marking passage into the cave. This trail was recognized not so much by the ceramic residue as by carbon or smoke-darkened ceilings and walls. Within Room 15, the farthest section explored by any of the previous visitors to the cave, this trail appeared to vanish into the massive breakdown which litters the floor of the room. However, with the aid of the electric lighting a faint trace of a trail was noticed which branched off into the small restricted passageway of Room 19 and was found to continue in a more definite and intact pattern than any seen in other sections of the cave.

This trail was traced into a series of rooms, which appeared to be untouched by the presence of modern explorers. In the chambers anterior to Room 15, freshly broken ceramic remains and other indications reflect the modern passage of intruders, whereas in the passageways past Room 15 remains apparently have stayed as left by the last aboriginal users. The trail in this section of the cave complex was at times marked by carbon packed upon the floor in a deposit as deep as several centimeters, as well as by the telltale traces of smoke upon the walls and ceiling.

The trail as traced appeared to terminate in an area of extreme dampness and pronounced travertine activity. In this section of the cave, four large water pools were found within a series of small chambers. The first two pool areas contained a concentration of broken water jars, some in fragments in the pools, but the majority littering the floor or sheltered in the small recesses and crevices nearby. Evidently, from this specialized ceramic form found in connection with the water supply, it may be deduced that this area served as a water source for some of the prehistoric inhabitants of X-Kukican and the surrounding countryside. Although the passageways beyond these water pools contained indications of limited human activity, in consideration of all factors it appears logical that the majority of the visitors to this particular area of the cave complex were in search of water. Brainerd (1958:98), in a footnote, reports an observation made by H. B. Roberts in 1935 of a man who was securing the sole water supply for his family from a water pool in the Gruta de Chac near Sayil. This involved, according to the account, a passage of 850 m through the cave for each round trip. The fellow next had to walk 1.5 leagues to his home at Sayil. It does not seem too improbable, then, that daily or regular trips by the inhabitants at or around the acropolis were made to the water pools in X-Kukican cave. The computed shortest round trip to the present first major water source, Room 30, is about 700 m. Although this route is difficult to traverse in sections, due to slippery floors, low crawlways, and rough breakdown, it does not have the formidable system of ladders present in Chac. Both routes would present equal difficulties in carrying a burden; however, the chances of becoming lost are much greater in the passageways of X-Kukican.

It may be fitting to add to the account at this time that all expenditures of effort in this section of the cave were a strain upon the physical and mental fiber alike. Caves in Yucatán are in general hot rather than cool, and in X-Kukican this thermal discomfort was increased by the high humidity and the lack of fresh air. In the chambers past Room 15, air became so stifling at times that it was impossible to ignite matches, or if that feat was accomplished, the matches refused to do little more than sputter and die. Therefore, only by the compelling nature of the archaeological remains was it possible at times to perform the grueling work necessary to complete the survey. Not only did the flesh suffer, but inanimate objects such as electronic flash guns would balk at their job in the cave and refuse to work properly thereafter. The high humidity also played havoc with camera lenses, and in these combined distractions many a good photograph was lost before it was ever attempted. It was no wonder then that the crewmembers who worked in the cave complex became proficient in English profanity.

Since this atmosphere probably has not changed since the days of early occupation, it is of interest to note the large numbers of ash deposits found throughout the cave complex. Some were perhaps the results of ceremonial activity; others must surely have been the residue of fires or torches used in connection with passage in and out of the cave complex. Investigations of several of the concentrations revealed that many of the ash areas contained both burned and unburned artifacts of flint, obsidian, jade, bone, and shell.

Artifacts, besides those found in ash deposits, were also discovered unassociated in the cave complex or in
the definite context of caches. Many of the unassociated objects can be accounted for by the general nature of caves. In the long history of aboriginal use of the cave, undoubtedly items were continually being lost or misplaced. Parallel examples were provided several times in the exploration by our own party when a pencil or other small item would defy even the searcher armed with a powerful electric light. Just as our mechanical pencil provides an indicator of our paraphernalia, so also do the scattered aboriginal objects serve as indicators. In one cave area of difficult descent, stone beads tentatively analyzed as belonging to the same assemblage were scattered as if lost by an individual in passage in or out of the cave. If this assumption is correct, then we can reconstruct, perhaps not the actual loss of the beads, but a situation in which someone entered the cave, perhaps to draw water, arrayed with a strand of beads. This case is duplicated in another section of the cave complex where a very difficult and narrow passageway wound over rough travertine floor. At the point where the constricted sides of the passageway necessitated movement only by crawling, a handful of small disk beads of a species of *Spondylus* were found near a small stalagmite.

Definite small caches were uncovered within many chambers of the cave. Objects, at times single items like a solitary marine shell, would be found tucked under stones or upon ledges in a context, which would preclude any situation other than definite placement. One of the more elaborate caches located within a recess under a large section of breakdown in Room 15 contained three large shell pendants and 15 subspherical jade beads. Another example, high on a ledge above the carbon trail in Room 19, was an unslipped striated utility vessel nestled in a medium slate bolster-rim basin.

Ceramic remains were abundant throughout most of the cave complex. However, as would be expected, the majority were located near the entrance of the cave. Objects, at times single items like a solitary marine shell, would be found tucked under stones or upon ledges in a context, which would preclude any situation other than definite placement. One of the more elaborate caches located within a recess under a large section of breakdown in Room 15 contained three large shell pendants and 15 subspherical jade beads. Another example, high on a ledge above the carbon trail in Room 19, was an unslipped striated utility vessel nestled in a medium slate bolster-rim basin.

Ceramic remains were abundant throughout most of the cave complex. However, as would be expected, the majority were located near the entrance of the cave. Certain samples were removed for study from various selected areas near the entrance, although most of the material was not disturbed. Instead, where possible, notes and observations were made on the spot and rough ceramic sherd type counts were taken in most of the cave chambers. Intact or nearly intact vessels were numerous, and a number of these not in caches or associated context were recovered. One striking example of Maya ceramic skill, which was not removed from the cave, is a shattered specimen of a possible Tepeu cylinder vase. This piece had been covered with a thin stucco coating and a two-panel polychrome scene was painted upon the stucco (for a description of the scene, see the section on “Detailed Description of Ceramic Illustrations,” to follow). This vessel, although considered too delicate and fragile to remove from the cave, was recorded during a painstaking all-day process within the cave. In this process, each sherd was drawn to scale so that it was possible to reconstruct the design by merely placing the sketched pieces in their appropriate positions. As several sherds had lost their stucco coating, several segments of design are not complete. However, enough was recovered to make possible the reconstruction.

During the investigations of the cave, one of the more unexpected discoveries was that of the many skeletal remains mentioned earlier. As cave and sinkhole burials are known from Yucatán (Ruz, 1965) and, more specifically, from the Puuc Hills region, burials were expected but not, however, in the frequency that they occurred at X-Kukican. In the cave of X-Kukican, skeletal remains were found in many scattered locations and represented at least 93 recognized individuals. These were recorded in a brief manner, due to lack of time. All skeletal remains were then left within the cave.

In general, it was evident that burials had been placed within the cave complex in anatomical order, normally near one of the used trails or passageways. The passage of time and human movement had displaced and moved many of the remains, resulting in the mixed and scattered condition usually observed by members of the field party. In the few cases in which a small chamber or a natural pit had been used as a final resting place, the remains were usually found more nearly in anatomical order.

The condition of the remains varied from fragmentary and in poor condition to nearly complete and in excellent condition. The ones located in wet areas of the cave, such as the passageway around Rooms 30 and 31, were in an excellent state of preservation. As some of these remains were completely submerged, this preservation is no doubt the result of the high mineral content of the cave water and the constant environment.

Of the 93 recorded individuals, both sexes and all ages were represented. Very few pathological conditions were recorded, which is perhaps indicative of the poor recording conditions present within the cave rather than of a general lack of pathology in the population.

Possible burial goods or items were present in a few recorded examples, yet clear association was never evident in any of these situations. The skeletal remains of one or more individuals would be found around and mixed with small scattered artifacts, or at times with the fragments of ceramic vessels; however, in no example did skeletal and artifact remains present an orderly aspect of direct burial placement with one individual. At times, ash areas were in close association with skeletal remains, and some bones gave indications of having been burned or charred. By far the largest percentage of observed burials had no items in association or in the immediate vicinity, and the burials themselves were found in a highly mixed and scattered context.

After all parts of our preliminary survey were completed, the entrance of the cave was sealed. This sealing was supervised by Victor Segovia of the Instituto Nacional de Antropología e Historia and the Instituto Yucateco de Antropología e Historia, and consisted of the erection
of a low mound of large stones over the entranceway. It is believed that this obstruction will provide the needed protection for the archaeological remains still present within the cave complex.

**ROOM-BY-ROOM DESCRIPTION OF THE CAVE**

During the mapping process, the cave complex was divided into 36 rooms (Fig. 1.19). Several of these divisions were completely arbitrary, while others represented distinct, well-defined room or passageway areas. The description of each room is brief, yet portrays what were considered the important aspects of the room and of the cultural features found within.

**Room 1**

The entrance of the cave opened into a large elliptical room with a northeast by southwest orientation. The floor was primarily monolithic limestone and was covered with large travertine deposits. From the entrance the floor of the room fell in about a 45° slope to the back wall. To aid in traversing the first and steepest slope at the entranceway, small footholds had been cut during aboriginal times. The remainder of the slope was covered with small breakdowns and fine soil and dust. Breakdown and ledges had formed natural dikes, which blocked the downward movement of this deposit, except when disturbed by human movement.

Ceramic potsherds were so numerous on the surface and in the debris of the slope that it would appear the entrance to the cave had been used as a large refuse dump. Broken fragments of at least four metates, Nos. 33, 34, 36, and 38, were also present, along with more recent foreign items such as some short poles and wood fragments, small animal bones, and various insects.

There was no current cave activity, although small stalactites, stalagmites, and drip curtains were evidence of moderate past action. During periods of rainfall a moderate amount of water runs down the right side of the entrance, but seeps rapidly into the earth and debris before reaching very far into the cave.

A very fragmentary human adult burial, Burial 1, was scattered at the foot of the slope near the entrance to Room 6. In the same debris, although by no means associated with the burial, were the remains of three polychrome Tzakol tripod plates. A general ceramic sample, Lot No. PX-297, was collected from the floor of the room and contains several partially reconstructable slateware vessels. A worked limestone object similar to a half sphere 46 cm in diameter was also recorded but not removed from the base of the slope.

Several openings left this room, and from there it was possible to gain access to Rooms 2, 3, 4, 5, 6, 7, and 9. The major trail into the cave cut across the middle of Room 1 midway down the slope and dropped steeply into Room 7.

**Room 2**

Room 2 was a long, curved series of connected small chambers formed by large breakdown lodging between the floor and ceiling of the sloping fault which formed the long axis of the room. The room opened under a ledge into Room 1, and was also connected to Room 3 near that point. There was a slight amount of past cave action near this junction, with a present heavy deposition of dry flowstone. The walls, floor, and ceiling were monolithic or

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Figure 1.19. Map of the X-Kukican cave complex.
large fragments of breakdown. The passageways cut into a sandstone stratum near the end of the mapped section, and brownish sandy dust was noted at several points. No dirt or ceramic deposit was found much past the entrance to the room. Ceramic material was not plentiful, and very little carbon deposit was noticed on the sides of the room.

One intact heavy grooved metate, No. 37, was located at the entrance of the room and perhaps had fallen from Room 1.

A negative type of painting of two open hands (Unit U) with partially interlocking fingers and a small stick-like object supported by the ring fingers was outlined in black on an outcrop of the ceiling about 23 m from the entrance to Room 1 (Fig. 1.20). No cultural material was found past this print, and exploration and mapping were soon discontinued because of the almost impassable as well as sterile nature of the passageways.

**Room 3**

Room 3 was an ill-defined, short, breakdown-choked passage, which connected with Rooms 1, 2, and 4. The room was in actuality part of Room 1, but it was now separated from that room by breakdown which had lodged between the present floor of Room 1 and its ceiling. It was therefore lower than Room 1, and most of the limited cultural material present in the room would appear to have filtered into Room 3 from Room 1. This cultural material included a heavy grooved metate, No. 53, and some medium slateware sherds.

**Room 4**

Room 4 was a large triangular room, which opened into Rooms 1, 3, and 5. The walls, ceiling, and floor were of monolithic limestone, with a limited amount of breakdown near the entrance to Room 3. A slight amount of cave activity was present, although extensive activity was indicated from the past. The floor was covered with a thick coating of flowstone from this action, and a depression in the center of the room appears to have once been a large shallow pool that perhaps covered much of the floor area.

Ceramic material was sealed in the travertine deposit left by this pool, and many of the recognized sherds were of Formative and Tzakol types. A ceramic sample was collected from this room and included two restorable vessels.12

Two fragmentary and badly disturbed human adult burials, Nos. 2 and 3, were located near the wall away from Room 1. Remains of several deer were found on the floor of the room and also mixed with the burials, and one ash deposit was seen near the opening to Room 3.

**Room 5**

Room 5 was a small irregular chamber, which opened into Room 4, with other openings into Rooms 1 and 6. The opening into Room 1 was framed by an impressive travertine column. Many of the formations had been broken at this point by aboriginal mining to secure calcite. This is perhaps the opening mentioned by Mercer, as from his description it appears that his party entered Rooms 5 and 6 (Mercer, 1896:144). The room has had an active life in the past, as shown by various formations and flowstone. At present the area has a dampness which is not found in any other part of the cave before Room 17. There is a slight amount of cultural and recent material within the chamber.

**Room 6**

Room 6 was a long chamber which connected to Rooms 1, 5, and 7. The floor dipped from Room 5 to 7, and also changed from monolithic limestone to loose, dry soil. Extensive cave activity had taken place in the past, but the entire passage was dry at the time of exploration.

A collection of deer bones was located near the junction of this room and Room 7, and some slateware and Tzakol sherds were scattered throughout the room.

**Room 7**

Room 7 was a low crawlway which connected Rooms 1 and 6 with Room 8. It appeared to have been formed as an enlarged solution channel. The average height of the passage was about 60 cm. The ceiling and walls were of limestone, which had been blackened by smoke and carbon. The floor had a deposit of dry soil about 10 cm deep, spread over most of the length of the chamber. Small breakdown fragments and extensive ceramic sherds were scattered over the floor surface. The recognized ceramic types were of the Formative, Tzakol, and late Early or Pure Florescent periods.

**Room 8**

Room 8 was an oval shaped room, which opened at the end of the crawlway of Room 7. The floor was composed of massive breakdown, except immediately in front of the entrance to Room 11. It was necessary to climb about 3 m into this room from Room 7 because of this breakdown. Large chunks of the breakdown formed a small maze system under the present level of the floor. Room 8 joined with Rooms 7, 9, 10, and 11.

The first definite indications of a trail began as one climbed into this room from Room 7. The trail followed along the top of the breakdown and entered Room 11. Potsherds provided some indication of this path, although many had fallen down into the cracks and potholes which marked the irregular floor. The floor and ceiling were also marked with smoke and carbon deposits.

Near the entrance to Room 11 was a large, unworked limestone formation, which has been termed “the head of the serpent” (Fig. 1.21). Valentine (1965:20-21) presents a more idealized account of this stone in which he seems to share in the local conception that this is a sculpted representation of a serpent. The formation does resemble, in part, the head of a snake with an open mouth, but it
appears to be completely natural rather than humanly sculpted. A large ash-cache area was located near the wall of the room behind this formation, and one-half of this deposit was removed and screened. This cache, Cache 1, contained a quantity of small shell, bone, and stone artifacts, many of which were burned and charred. Mixed with the ash, and on the floor of the room around the cache, were lumps of charred organic material, resembling the residue from burned copal.13

Although previous visitors had picked over the pottery around the room, a sample was removed which included several reconstructable vessels. Other features included a heavy grooved metate, No. 32 (Fig. 1.22), and the remains of the badly disturbed and fragmentary Burial 4, an adult male.

Room 9
Room 9 was a narrow passage that paralleled Room 7 and connected Room 1 to Room 8. It seemed to be the open portion of a fault and was filled, in part, with large breakdown. No cave activity was observed for either past or present times.

No foreign or cultural material was present, and although the room provided a passageway into this cave from Room 1, movement by this route was difficult because of its irregular composition.

Room 10
Room 10 was located next to Room 8 and was lower than that room. It was little more than a small passageway, which continued to constrict until progress was impossible. Cave activity was slight, yet the floor was damp in several spots.

Several bats were seen, and bat remains were rather common. Near the entrance of the passageway a thin deposit of burnt corncobs, seedpods, beetle wings, and various wood fragments had perhaps been carried into the cave by bats. A few slateware and unslipped utility jar potsherds had fallen into the entrance of the room from Room 8.

Room 11
Room 11 was a rectangular room which connected Room 8 to Room 14. Two smaller openings united with Room 12 at a point midway along the room. The floor sloped gradually downward to approximately the center of the room, where it then sloped slightly upward to the entrance of Room 14. The chamber appeared to be a solution channel and all sides were of monolithic limestone.

The floor was relatively clear both of breakdown and cultural remains. The entranceway into Room 8 had some material, perhaps scattered from around the nearby stone “serpent head.” One disturbed and irregular ash deposit was located in the chamber at the entrance to Room 14, and carbon and smoke traces were present all along the room.

Room 12
Access into Room 12 was by two solution tubes from the lower section of the wall of Room 11. The room was oval in shape, with a smaller extension located near Room 11. The floor of Room 12 was relatively level and was covered with a thick deposit of reddish soil and sand. Several stones upon the earth floor appeared to have rolled into
the room from Room 11. The ceiling was arched into solution domes located at the eastern and western ends of the room. Limited cave activity in the past had produced several travertine formations, but the majority of the walls were smooth limestone.

Bats were frequently seen here and also in Room 11, and several guano deposits were present under each dome in Room 12.

A limited quantity of Tzakol orange slipped jar sherds and slateware sherds were scattered upon the floor, and in the recent past an unknown intruder had scratched a small hole in part of this deposit.

**Room 13**

A human-sized solution tube led slightly upward from a position in the wall of Room 12 and then dropped into Room 13. This narrow passageway was further constricted by two opposing travertine dikes, which paralleled the floor and almost divided the passage. This formed what resembled a figure eight in cross-section. The walls of this tube were monolithic limestone and were extremely fossiliferous.

Room 13 itself was composed of two small solution domes with the entrance passage between them. The domes were connected by a widened portion of this entrance with a level floor. This floor was monolithic limestone covered in part with a reddish soil and some small stones. Bat guano was present in small patches under each dome.

The little cultural material within the room consisted of scattered potsherds similar to those in Room 12. Some recent digging had been conducted in the floor, perhaps by the same party who disturbed Room 12.

**Room 14**

Room 14 was an ill-defined room located at the end of the passage of Room 11. The room connected with Rooms 11, 15, 16, and 17. The floor was composed of massive breakdown, with a large flat monolithic boulder partially blocking the entrance from Room 11. The floor level was above that of Rooms 11, 16, and 17, and below that of Room 15. Little or no cave activity was present.

The upper surface of the large boulder at the entrance to Room 11 had seen much activity during aboriginal times. The surface was covered with carbon stains and some pottery sherds, and resting near two ash deposits were two heavy grooved metates, Nos. 30 and 31. The trail from Room 11 climbed around the right side of this boulder, passed over it, and climbed into Room 15.

**Room 15**

Room 15 was a large, roughly oval room, which connected with Rooms 14, 17, and 19. The floor of the room was covered with massive breakdown, which sloped from the entrance from Room 14 to the westernmost wall of Room 15 (Fig. 1.23). It would appear that at one time the floor level of this room was the same as that of Room 11. However, one or more large cave-ins had buried the original floor to a depth of at least 5 m, with the southwesternmost portion of the room buried to a depth of around 10 m. This event had occurred prior to the Formative Period in Maya prehistory, or well before any recognized human activity took place within the cave complex. The ceiling and floor of the room were irregular, and the floor contained several small crawlway mazes similar to those in Room 8. A few small drip curtains were the sole indications of cave activity.

The walls and ceiling appeared to be of a form of sandstone, with a hardness of about 2.0 to 2.5 on the Mohs scale. Certain other areas were of a harder limestone, and this seems to suggest two limestone strata sandwiching a sandy stratum between them.

Local tradition, suggested by some of our workers who had accompanied Valentine in his exploration, relates that this room is directly under the acropolis complex located upon the surface. A stairway or shaft also provides a connecting link between these two, or so the story goes. Unfortunately, the cave complex runs in a westerly direction from the entrance, which is away from, rather than toward, the acropolis. The room was referred to as “The Temple,” implying that a connecting relationship does exist, and this name was not rejected in the naming of cave rooms during the exploration. A map of Room 15 showing the location of its internal features, together with adjacent portions of Rooms 11, 12, 14, 16, and 17, is given in Fig. 1.23.

This room had the largest concentration of aboriginal decoration within the cave complex, (Figs. 1.24-1.28). All but one cave drawing (Unit R) and one handprint (Unit U) were located within the immediate bounds of
this room. During investigation, these were assigned individual unit designations. Each unit was then recorded, with compensation for the natural surface.

**Unit A** (Figs. 1.24, 1.25). This was a collection of eight positive and four negative hand prints with fingers spread open, found on the wall of Room 15 above the entrance from Room 14. The four negative prints were grouped together and appear to represent all left hands. The positive prints were scattered over the wall surface above the negative prints; seven of these appeared to represent the right hand and one the left hand. A black pigment was used in all examples, perhaps some form of carbon or organic stain. In the negative prints, the actual hand was the color of the wall at that point, a reddish-brown hue.

**Unit B** (Fig. 1.26). Two unidentified incised items made up this unit. One was vaguely reminiscent of a speech scroll, whereas the other appeared to be only connected lines. Both were located upon the wall of Room 15 near Unit C.

**Unit C** (Fig. 1.25). This was a collection of five positive black hand prints located on the wall of Room 15. These appeared to represent three left hands and two right hands, with fingers spread open in a pattern similar to the positive prints in Unit A.

**Unit D** (Fig. 1.25). This unit was located along the trail from Room 15 to Room 19, and was near the entrance of the narrow passageway that connected these two rooms. It was the imprint of a left and right positive black hand print.
with fingers spread apart. Judging from their placement and size, they could well have represented one individual.

**Unit E** (Fig. 1.26). This was an incised group of three human profiles and some unrelated lines. The major figure represented an individual wearing some form of headpiece. Two close lines upon the individual’s face perhaps represented scarification, and a series of lines originating from the mouth was perhaps a speech symbol. The other human representations were partial profiles facing in the same direction as the main figure. All three were characterized by thick lips and partially opened mouths.

**Unit F** (Fig. 1.27). This unit, along with Units E and Q, occupied a level section of the wall of Room 15. It consisted of an incised figure, perhaps some form of insect.

**Unit G** (Fig. 1.26). This unit was located on a large breakdown fragment near the southwestern wall of Room 15. As the floor sloped from this portion of the room toward the entranceway from Room 14, this unit was at a much higher elevation than the others in the room. The unit consisted of concentric rays, which were scraped or ground into the flat upper surface of the breakdown by a blunt object.

**Unit H** (Fig. 1.27). This was a large segment of wall covered with various incised figures and lines. The top section of the unit curved from the wall and covered a portion of the ceiling. At least two crude full figure representations of birds were illustrated in this unit, along with one unidentified head. The other items, although some were done with great care, were not identified.

**Unit I** (Fig. 1.27). This was a single incised figure located near Unit H. It could well represent some form of head, as apparent eyes were present.

**Unit J** (Fig. 1.27). This, like Unit H, occupied a large section of the wall and continued in part onto the ceiling of the room. The majority of the unit consisted of incised parallel wavy lines, together with one unidentified incised head.

**Unit K** (Fig. 1.26). This was a series of incised or scratched lines on the wall of the room near Unit J.

**Unit L** (Fig. 1.27). This unit was a small, incised human head upon the wall of Room 15.

**Unit M** (Fig. 1.26). This unit was incised upon a small ridge, which jutted out from the ceiling of Room 15. Also along this ridge was Unit P, while on the floor below this point were found Units N and O. Unit M itself was composed of unrelated lines and one unidentified, possibly animal, head.
Unit N (Fig. 1.26). On the floor of Room 15, almost directly below Unit M, was a large fragment of limestone breakdown. The exposed face of this stone had two major parallel planes; one was found Unit N and on the other Unit O. Unit N consisted of an upright, incised crude male human figure. Little clothing was suggested, with a navel and an erect penis clearly evident. The face, although crude, appeared to have hair, scarification, and what was perhaps a labret or other ornamentation protruding from an excurvate upper lip. A series of unrelated lines appeared behind the right shoulder of the figure. The entire unit was well worn, and was covered in part by carbon or smoke deposits.

Unit O (Fig. 1.26). This unit was found on the opposite side of the breakdown graced by Unit N. The unit depicted one foot and part of another. These, rather than being incised, were pecked and perhaps ground into the stone. The intact foot resembled that of a human.

Unit P (Fig. 1.28). This unit extended for about 4.5 m along the same ridge occupied by Unit M on the ceiling of Room 15. The unit was composed of 17 negative hand prints. All were outlined in black, as were the prints in Unit A. Of these prints, nine were of left hands, six of right hands, and two of fingers only. In three cases, both hands were depicted together. Two of the pairs were holding a stick or stick-like object similar to that seen in Unit U. Among the single hand prints, all except two were represented with spread fingers. Of the two others, one depicts a closed-fingered right hand and the other several fingers together with one extending up from the hand in a crooked position. This position is quite similar to that assumed when, with the aid of a concentrated light source, it is possible to project “beasties” for amusement upon a surface in a darkened room.

Unit Q (Fig. 1.27). This was an unidentified incised rounded figure encountered upon the wall of the room near Units E and F.

Unit S (Fig. 1.27). In the massive breakdown present within Room 15 were several small passageways and cul-de-sacs. One such passage, which followed a devious route from Room 15 to Room 14, had a small incised figure on a breakdown fragment near its opening into Room 14. This figure was well executed and portrayed a human face with perhaps a speech symbol near the mouth and two semicircular objects along the back of the neck.

The initials “J. M. V.” and “G. H. W. (M. O.)” along with
Figure 1.27. Scratched and incised units from the walls of the cave complex.
the date “Jan.—Feb.—1962” were scratched on the same stone as the unit.

Unit T (Fig. 1.25). This was a single negative right hand print with spread fingers located on the wall of Room 15 between Units K and L.

Indications of human activity besides the above-described units of aboriginal decoration were quite common within Room 15. A ceramic sample was collected and, although little was removed, most of the material was counted with the aid of electric lighting. Two heavy grooved metates, Nos. 28 and 29, were found on the rubble floor of the room, and 11 ash or cache areas were plotted. Most of these were concentrations of ash, perhaps from fires used to kindle torches or to provide light for passage in the room. Several, however, were investigated and were found to contain small artifacts.

Cache 5. This was a small ash deposit which contained a fragment of a plain shell pendant, two representations of teeth cut from shell, a jade human head pendant, a shell disc bead, and nine small shell beads.

Cache 6. Cache 6 was a true cache not associated with any ash deposit. The cache consisted of four matched stemmed projectile points of flint which had been placed in a crack under a large breakdown fragment. The points were unusual in having two distinctive types of coloration in the hafting area. One was a white substance high in
limestone which coated both sides of the stem and was perhaps some type of adhesive used in the hafting process. The other was a red pigment, which again coated both sides of the points. This pigment was apparently placed on the points while they were still hafted, for a distinct unpigmented area was present on each stem corresponding to the space the shaft would have occupied.

Cache 7. Cache 7 was also a true cache, consisting of a large jade subspherical bead, which had been placed in a crevice under a large stone directly across from Cache 10. This cache may be related in some manner to Cache 10, a relationship suggested by the similarity of the beads in each cache and their close proximity. Both Caches 7 and 8 were discovered after Cache 10, as a result of the discovery of Cache 10.

Cache 8. Cache 8 (PX-23) was a concentration of ash about 3 cm thick. This material, when sifted, was found to contain fragments of a bone pin, an obsidian blade, a perforated deer tooth, and a stemmed flint projectile point.

Cache 9. Cache 9 (PX-24) was a large ash area about 1.7 by 2.4 m in diameter, containing ash about 4 cm thick. This area yielded a fragment of another bone pin, an unmodified animal tooth, and two flint flakes.

Cache 10. Another area investigated was that of Cache 10 (PX-25). This was a true cache with no ash deposit other than what had shifted from Cache 9. The cache was composed of three shell pendants and 15 large jade beads, all of which had been placed in a crack about 50 cm beneath a large stone near Unit N. The beads were grouped together in a semicircle behind the three stacked pendants. This cache was not found by exploration in the true sense, but rather when a mechanical pencil dropped on the floor and bounced near the cache under the stone. Similar cracks and crevices were thereafter searched throughout the cave, and although several other parallel situations were found (such as Caches 6 and 7), none were as spectacular as Cache 10.

The trail, which entered Room 15 from Room 14, was lost amid the rubble of the floor. However, it was again picked up as it traveled toward and into the passageway which led to Room 19 (Fig. 1.23).

Room 16

Room 16 was a poorly defined and irregular room, which for the greater portion of its length represented the lower portion of Room 19. The room opened into Rooms 14, 19, and 20. The floor was irregular and covered with many fragments of breakdown which had fallen from Room 19. Cave activity was light in the past and is almost nonexistent at present.

Foreign items included deer bones and ceramic sherds, all of which seemed to have fallen from Room 19. A few bats were seen, but did not seem to stop in the room. Burial 5 was found scattered on part of the slope to Room 19 and also near the foot of the slope in Room 16. Although badly disturbed, the skeletal material was in a good state of preservation and represented an adult male.

Room 17

Room 17 was a well-defined room to the north of, and lower than Room 15. It had several openings into Room 15 and was also connected to Room 14 by a narrow passageway.

Cave activity had been high in the past, producing stalagmites, stalactites, and flowstone. Today the area is still quite damp, and in several places thin sheets of water covered the floor.

Ceramic material was quite common, and the most common form and type was that of the medium slate bolster-rim basin. Several of these basins had been smashed in the room, and at least one large slate sherd was collecting water from a slow drip from the ceiling. This sherd had no travertine deposit and was perhaps only recently placed at that point, as recent intruders had passed over much of the room.

Room 18

Room 18 was a small chamber which extended to the north from Room 17. The room was situated in monolithic limestone, and was free from breakdown. The floor of the room was about 2 m lower than that of Room 17, and was covered with a thin sheet of water. Cave activity was high, and limestone formations were numerous and varied. Ceramic material, similar in all respects to that found in Room 17, was found in small amounts throughout most of the room.

Room 19

Room 19 was a long passageway that joined Room 15 to Room 20. The passage was about 5 m above the floor of Room 16, and consisted in certain parts of little more than a narrow ledge. Along this ledge was the trail, which continued from Room 15 to the back reaches of the cave. Smoke-darkened walls and ceiling and a thick carbon deposit upon the floor were ample evidence of much use of the path, and at one difficult point, crude footholds had been fashioned by pecking small holes in the stone.

Above the trail was at least one cache. This, Cache 19, was not removed from the cave (Fig. 1.29). The cache consisted of an unslipped striated utility jar nestled in a medium slate bolster-rim basin. Several strategically placed stones under the basin aided support of the somewhat precariously positioned cache. Within the utility jar were several small, unworked marine shells and the remains of an organic residue.

About midway along the passageway from Room 15 to Room 20 was an incised area similar to those in Room
15. Unit R (Fig. 1.27) was little more than a collection of crisscrossed lines with what is perhaps a human figure near one side. This unit is important because, although the units in Room 15 appear to be the works of aboriginal artists, the soft quality of the stone they were cut into and the evidence of some prior human entrance could well cast some doubt as to their authenticity. However in Room 19, exploration had reached virgin cave, so to speak. The carbon trail had not been trod upon by modern humans for even in one passage our footsteps left traces easily seen. Therefore, Unit R proves that some of the incised elements, if not all, are the works of other than modern intruders.

Room 20
Room 20 and Room 21 formed one large room, which was divided by a constriction fashioned by cave formations. Also, Room 20 was higher in elevation than Room 21. Where Room 19 entered Room 20, the room was composed of massive breakdown, although the remainder of the room was relatively open. Near the junction with Room 21, past and present cave activity has been high. Many of the resultant cave formations had been partially defaced by the aboriginal mining of calcite, and stalagmite and stalactite fragments littered the floor. The carbon trail entered Room 20 from Room 19 and crossed the room, passing down a steep slope into Room 21.

Three burials were found in Room 20. Burial 6 was an adult, sex undetermined, and was badly scattered together with ashes and slateware jar sherds along the trail. Nearby along the trail was Burial 7, an adult burial in partial anatomical order. Sherds of a medium slate jar were scattered around the burial and a broken medium slate bevel rim ring stand bowl was about 1 m away. In a small crevice which opened into the breakdown near Burial 7 was Burial 8. This was the badly scattered remains of an infant or small child with no cultural items in its vicinity.

Room 21
Room 21 was a lower segment of Room 20 and also the start of a long, wide passageway, which was relatively free of breakdown. Room 21, besides opening into Rooms 20 and 22, had a narrow, cramped passage, which connected to Room 19.

Cave activity was quite high at the time of exploration. Thin sheets of water covered the floor in many spots and a steady drip was present from several ceiling formations. Stalagmites and stalactites, along with “soda straws,” “popcorn,” “curtains,” and flowstone covered most of the surface of the room. The floor of the room appeared to have had a great amount of standing water at one time, and on the floor many stones and ceramic sherds were eroded and water-worn from its action.

The trail descended into Room 21 by means of a quite slippery flowstone slope, and then crossed the large travertine mass of the room and entered into the dry passageway of Room 22. Much of Room 21 was covered with deposits of smoke and carbon, as if more than a passing interest had been paid to this area.

Several small artifacts were recovered on the floor of the room, including such items as a fragmentary bone pin, a shell rod, and a small collection of pottery, shell, and stone beads. These beads were all somewhat similar, and, from their location at the base of the slippery upward slope to Room 20, appeared to have fallen down that slope. A search located several additional beads upon the slope, which tends to suggest that they were either lost while their owner was struggling up or down the slope, or were simply cast into Room 21 from some point within Room 20.

Ceramic remains were quite common within the room, and included examples of medium slate bolster-rim basins, medium slate jar forms, and plain Tzakol orange slipped jars. A partially intact presumed Tepeu-like cylinder vase was removed from a small crevice near the trail as it first enters the room, but all other ceramics were left untouched. On one side of the room, completely covered with flowstone, was an intact or partially intact bolster-rim basin of an unknown ware. This feature was quite striking because only two large handles and the suggestion of a rim indicated that this small mound of gleaming white travertine contained a human-made object. The vessel appeared to have been placed upright to catch dripping water, which still falls at that point. Several broken slateware basins were scattered around this natural monument to human passage into the cave.

Figure 1.29. Cache 19, an unslipped striated jar resting in a medium slate bolster-rim basin, in situ on a ledge above Room 19 in the cave.
A heavy grooved metate, No. 54, was found along one side of the room, but as it was not under any drip area and did not contain travertine deposits, it did not seem to have been used as a catch basin.

Only three burials were located within the confines of the room: Burial 9, the fragmentary, scattered remains of a child located in a small crevice; Burial 10, the skull fragments of an adult, perhaps male; and Burial 11, the scattered remains of an adult of indeterminate sex.

**Room 22**

Room 22 was a wide, dry open passageway that connected Room 21 to Room 23. It appeared to be some form of a solution passage with little breakdown and little or no cave activity.

The trail passed directly along the room, with a wide path of smoke and soot deposits along the ceiling and walls to mark its passage. The floor of the room was covered with numerous carbon deposits and several ash concentrations.

Ceramics were scattered throughout the room. Medium slate jar forms, medium slate bolster-rim basins, and unslipped striated utility jars were the more common types and forms. Tzakol plain orange slipped jars, medium slate bevel rim ring stand bowls, and medium and thin slate cylinders were also found. An intact heavy grooved metate, No. 1, was upright along one side of the trail and had not been used as a water basin.

Various burials and burial concentrations were scattered along the floor of the entire room. Most of these remains, as was true throughout the cave complex, were in poor condition. Bones were scattered and broken, often mixed with those of adjacent burials. Since many burials were found on, or immediately adjacent to the trail, by passage along the trail it would have been almost impossible to keep from disturbing the bones. This is especially true when one considers that in aboriginal ventures into the cave the only light source was that of smoky fires and torches.

The burials in Room 22 included Burial 12, the scattered remains of an adult with the bones mixed with ash and unslipped utility jar sherds; Burial 13, the scattered remains of an adult male with mixed ash and slateware jar sherds, Tzakol jar sherds, and unslipped utility jar sherds (the metate mentioned in the room was located next to this burial); Burial 14, the remains of an adult with tooth wear to the second degree, with slateware bowl, jar, and basin sherds scattered in and near the burial; and Burials 15, 16, and 17, the remains of two adult males and one preadolescent child. The remains were mixed together in one area, with one male in partial anatomical order. Recognized pathology consisted of one adult femur which exhibited slight lipping at the proximal end, perhaps a manifestation of osteoarthritis; dental caries; and second degree wear in most adult teeth. Mixed with the burials were fragments of a medium slate jar and one chip or flake of gray to black obsidian. Burials 18 and 19 were located near Burials 15, 16, and 17, and represented an adult male and female. The bones were scattered over a wide area, and fragments of a medium slate cylinder were mixed with the greatest concentration of skeletal remains. Burial 20 was represented by a few scattered bones of an adult, perhaps male. Burials 21, 22, and 23 were the badly scattered remains of three adults. One was a female, the sex of the others undetermined. One upper central incisor exhibited mutilation of type AI type according to Romero’s (1960) scheme of classification. Many of the other teeth exhibited second-degree tooth wear. Mixed with and around the burials were sherds of a medium slate jar and a Tzakol orange slipped jar. Burial 24 was the remains of an adult, sex undetermined, which was found scattered behind an outcrop of the floor. Burials 25 and 26 were both badly disturbed. One was an adult and the other was a preadolescent. Sex was not determined for either burial. In association with the latter burials was a ceramic spindle whorl. Burial 27 was the scattered remains of an adolescent. A few bones were perhaps charred, and many of the other bones were mixed with a small ash deposit. Burial 28 was an infant burial in an extended position. The bones were in a poor state of preservation. Burial 29 was the charred and scattered remains of an adult male. Burials 30 and 31 were the scattered remains of an adult and an adolescent. Burials 32, 33, and 34 were scattered and mixed over a small area near the trail. They represent an adolescent and two children. A small, perforated marine shell disk, 1.9 cm in diameter, was in association with this burial group. Burials 35, 36, and 37 were a group of two adults and one child. The skeletal remains were scattered and many bones were charred. One adult was classified as a female, while the sex of the others was undetermined. Pathology was noted in the fusion of two lumbar vertebrae of one of the adults. Burial 38 was the scattered and charred remains of an infant. Burial 39 was an adult female, once in a flexed position. Several bones were charred, and near the burial was a reworked obsidian core. Burials 40, 41, and 42 were located in a large sink to the right of the trail near the entrance to Room 23. These burials appeared to have been thrown into this pit with little or no ceremony. The burials represented two adults and one adolescent who were scattered on the floor of the pit, many of the small bones having fallen into the loose rubble which composed the floor. The burials had been in a contorted position, and near Burial 42 was a marine shell pendant. The pendant was a Spondylus shell with the edges ground smooth and two biconical perforations for suspension.

**Room 23**

Room 23 was a short, restricted crawlway, which connected Room 22 to Room 24. The passage was constricted by some breakdown, and no cave activity was present. The floor contained a slight amount of soil.
An obsidian blade was found on the surface when the first entrance was made. Few other indications of human passage were noted except for the ever-present smoke stains which marked the trail.

**Room 24**

Room 24 had the largest floor space of any room in the cave. The room was well defined and was partially blocked from Room 25 by a broken extension of one wall. The floor was covered with massive breakdown and many cracks and crevices. Cave activity was very light in the past.

The blackened trail exited from Room 23 and traced its way along the breakdown about midway across the room. At this point definite indications of a trail ceased to exist. Cultural material was scattered over the room and also continued into Room 25.

Skeletal remains were present at several locations within Room 24. All were in a very poor state of preservation and each seemed to be of an adult of indeterminate sex. Burial 43 was the scattered remains of an individual located on a large breakdown fragment. Dental mutilation was present on the lower central incisors, of type A1 (Romero, 1960). Burials 44 and 45 were an adult and an adolescent.

Six ash areas were recorded in this room, designated Caches 20 to 25. These were all small ash deposits located on the flat surface of the breakdown, and most contained small artifacts and slateware and unslipped ceramic sherds. Several of the ash deposits were investigated, and some of the artifacts found were removed from the cave.

Cache 22 contained a ceramic whistle, an obsidian blade, and some small shell and bone artifacts, all of which were removed from the cave.

Cache 23 consisted of an inverted heavy grooved metate, No. 2, a flaked flint hand axe or hammerstone, and a limestone mano. None of the material from this cache was removed.

Cache 24 contained a flint projectile point or knife in a nearby crevice in the floor, an obsidian blade, and several shell items including a shell frog, and a shell human profile pendant, all of which were removed from the cave.

Cache 25 contained a large flint projectile point or knife, shell rings, a jade earplug component, several small items, and five obsidian blade fragments. All these artifacts were found on the surface of the ash deposit and were removed from the cave.

A medium slate hemispherical bowl found near the entrance to Room 25 was removed from the cave, and a small basin was removed from a crevice near the entrance to Room 23.

**Room 25**

Room 25 was a continuation of Room 24. The room was quite similar to Room 24 in general appearance as here, also, massive breakdown covered the entire floor. The room divided; one side entered into Room 26 and the other into Room 29.

Carbon and smoke traces were present throughout the room, with an indefinite trail leading into Room 29. Only one cache and ash area was located within Room 25. This was Cache 27, which consisted of two gray to black obsidian blades. They were not removed from the cave.

On the floor of the room were several intact and reconstructable vessels. Several of the reconstructable ones were removed, while the two intact specimens were left in situ. These intact vessels consisted of a large medium slate bolster-rim basin, Cache 26, which was sitting at an angle near the entrance to Room 24; and a small unslipped striated utility jar, Cache 28, which had fallen into a crevice in the floor (Fig. 1.30).

Four burials were located within the room. Burial 46 was near the entrance to Room 24 and represented the scattered remains of an adult.

Burial 47 was the scattered remains of an adult. Dental mutilation of type A2 (Romero, 1960) was present on a lateral mandibular incisor. Mixed with the burial was a small amount of ash, two tinklers of Oliva shells, a small shell ring, and fragments of a medium slate bolster-rim basin, a medium slate small jar, and two unslipped striated utility jars. Cache 27, described above, was located about 2 m from the burial.

Burials 48 and 49 were mixed together along with some ash at the entrance to Room 23. Burial 48 was that of an adult female with dental mutilation of type B5 on an upper canine and type A2 on an upper lateral incisor (Romero, 1960). Burial 49 was of a young adolescent with fragments of a deer jaw and skull and a small animal’s skull and femur mixed with the remains of the burial. With these burials...
were several artifacts which include the point end of a 2.8 cm long bone needle, a gray to black obsidian blade 4.0 cm long with use flaking on both sides, a 1 cm long and 5 cm wide tubular bone bead with a biconical perforation, a 0.4 cm long fragment of a jade tubular bead, a large *Olivella* shell tinker, and several small unmodified sea shells. Fragments of a medium slate bolster-rim basin and of perhaps two unslipped striated utility jars were found with and around the burials. No material was removed from this burial concentration, and as usual in these situations, material was left in situ as much as possible.

**Room 26**

Room 26 was a passageway which opened into Room 25 and connected that room with Room 27. Little breakdown was present in the passageway, and little or no cave activity was evident. The limestone walls and ceiling of Room 26 were quite fossiliferous.

No foreign items were noted within this room. In truth, the passage presented the most sterile view of any room in the cave complex.

Upon reaching Room 27 at the end of the passage, it was necessary to climb down about 3 m on a steep slope to the floor of the latter room.

**Room 27**

The room at the end of the passageway of Room 26 was a small, oval dry chamber similar to a solution dome. The floor was rough and irregular and contained some small breakdown on its surface. A smaller chamber opened off the room, and slight past cave activity was noted within its confines. The room was connected to Room 28 by two human-sized solution tubes, which opened from the wall.

A slight amount of ash was present upon the floor of the room, and slight traces of soot and smoke stains darkened one of the entranceways to Room 28. In the small chamber which opened from Room 27 were two poorly preserved burials. The entrance to this chamber was partially sealed by a 1.0 meter long and 0.5 meter high wall which was constructed of unworked breakdown fragments perhaps picked from the floor of Room 27. A flint pick or axe was removed from a small ledge above the completed wall section.

The burials within the chamber, Burials 50 and 51, were of an adult male and female. The female was extended, face down in anatomical order. Dental mutilation was present, but field notes failed to provide an identifying description. The male was in a tightly flexed position, with the knees against the chest and face pointing downward.

**Room 28**

Room 28 was a narrow solution tube which joined Room 27 with Room 29. The passage was damp, and contained extensive flowstone and some stalactites and stalagmites. The sides of the room were darkened with smoke stains, as if limited human passage had occurred. A shell pendant was noted, but not described, near one of the openings to Room 27, and a few slateware basin and jar sherds were found near its junction with Room 29.

**Room 29**

Room 29 connected with Rooms 25, 27, and 30. Hence it is apparent from the map (Fig. 1.19) and this description that it was possible to travel from Room 25 in a circle through Rooms 26, 27, and 29, and again into Room 25.

The floor was irregular for most of the length of the room, with some breakdown near its junction with Room 25. Several small crevices opened in the monolithic floor, and water stood in the bottom of several of these. One such small water hole had a small cairn of stones placed over its mouth, perhaps to keep foreign items from falling into the water.

Cultural material was quite abundant in this room, and carbon and smoke deposits darkened the walls and ceiling. A packed carbon trail started in the breakdown of Room 29 near its entrance to Room 25 and traveled to the junction of Rooms 28, 29, and 30. At least one large crevice, which opened into the wall and floor along this trail had been used as a natural ceramic refuse dump. Inside this “pottery crack” were the broken remains of about 20 medium slate jars, with slateware jars and basins and a few Tzakol plain orange slipped jars present beside and on the trail at various points along its route.

Eleven burials were recorded at the junction of Rooms 28 and 29. As the passageway was relatively narrow at this point and the burials had been greatly disturbed and scattered in the past, it was almost impossible to walk without stepping on loose bone. Movement was therefore slow and restricted in passage through this room.

Burial 52 was the fragmentary remains of an adult female. Tooth wear was of the second degree.

Burials 53, 54, and 55 were the mixed remains of two adults and one child, sexes undetermined. Dental mutilation was noted on three maxillary incisors, but it is uncertain if these were from one or two separate individuals. One mutilation was of type A1, and the other two were of type B5 (Romero, 1960). A large flint projectile point was removed from the burial concentration.

Burials 56, 57, 58, and 59 were located near the previous burials. These remains were of four adults, sexes undetermined. Perhaps additional burials were represented in this group, as the fragmentary nature of the remains made identification difficult.

Burial 60 was the fragmentary remains of an adult placed in a small crevice along with medium slate jar sherds.

Burial 61 represented an infant, possibly a stillbirth based on the size of the skull and ilium. The remains were located to one side of the entrance to Room 28, and apparently a medium slate wide mouth jar had once been inverted over the burial.

Burial 62 was directly across the passageway from
Burial 61, representing the fragmentary remains of an adult mixed with sherds of a medium slate jar and a Tzakol plain orange slipped jar.

**Room 30**

Room 30 was located above and at the junction of Rooms 28 and 29. To reach Room 30 it was necessary to climb about 2.5 m up the side of a damp flowstone slope. The chamber itself was small, and opened into three passageways with large water pools. One led to Room 31, another to Rooms 32 and 33, and the third extended only about 8 m before reaching water and constricting to an opening too small for human passage. Cave activity was quite extensive in Room 30. Almost the entire room was covered with some form of travertine formation, and constant dripping areas maintained a thin film of water over the entire room. The water level in each pool was at the same elevation, and the depth of the deepest pool was not over 1.3 m.

The floor of the chamber was covered in spots with ceramic sherds. Several cracks and crevices were also filled with broken vessel fragments. All recognized vessel forms were those of jars composed of slatewares, Tzakol plain orange slipped wares, or unslipped striated utility wares. It would appear logical that the two major water pools and the one smaller pool in this room provided a principal water source for local inhabitants. From the specialized single vessel form located here it would seem likely that much of the water was transported in jars, although gourds were perhaps also used. Of gourd vessels no traces were found, for their perishable nature would not allow them to last in the humid atmosphere. Several perforated shell disk beads, about 1.0 cm in diameter, were scattered around the room. Little else besides ceramics was present in the form of artifact remains. Some of the cave formations had been broken and mutilated, and a general darkness covered the room as a result of the thick soot and carbon stains on the walls and ceiling.

No cultural material from Rooms 30 to 36 was removed from the cave other than temporarily, for a short period. An attempt was made in these rooms, more so than in any other area of the cave, to leave material in situ. If items were picked up or removed, they were later replaced in their nearly exact original position and orientation. This put an even greater strain on the mapping and note-taking process, but the result of leaving most of the back area of the cave as originally found was well worth the effort.

**Room 31**

Room 31 was a small, rounded dry chamber at the end of a passageway from Room 30 beyond a water pool. The small floor area of the chamber was occupied by two fragmentary burials. These appeared to have once been resting on their backs in a partially flexed position. Burial 65 was an adult female with a B5 type of dental mutilation (Romero, 1960) on one lower canine. No other teeth exhibited mutilation. However, not all the incisors and canines were found. Burial 68 was an adolescent whose remains were in a very poor state of preservation.

**Room 32**

Room 32 was a passageway beyond the other large water pool in Room 30. The passageway continued after the water pool and past the entrance to Room 33 until it encountered a second deep water pool. The passage was constricted to the point of a crawlway at several points, and in general was just as wet and as active as Room 30.

Broken cave formations and carbon stains marked the passage of aboriginal explorers, and a large, unslipped striated utility jar (Fig. 1.31) near the entrance to Room 33 had evidently been abandoned in the center of the passageway when its bottom was broken out by a nearby stalagmite. The vessel was found resting on its side, while about 50 cm away the broken basal portion surrounded the projecting cave formation. A few other slateware sherds were scattered within the passage, though the passageway was otherwise quite clear of cultural debris.

**Room 33**

Room 33 was a small chamber that branched from Room 32. The floor level of the chamber was about 2 m below the floor of Room 32, and access was down a steep, damp travertine slope. The chamber itself was damp, with a film of water over much of the floor and extensive formations within the room. The room had a low opening, which entered into Room 34.

Figure 1.31. Unslipped, striated utility jar in situ in Room 32 near the entrance to Room 33.
No pottery was found within Room 33, although the floor around the edges of the room was covered with about a 2 cm deep deposit of several species of land snails mixed with mud. It is not known how or why these shells were so placed within the room. From the depth of the room below the present ground surface it does not seem possible that these shells could have entered by natural means. However, why an extensive effort would have been made to carry this many shells into the cave is an enigma. No other area in the cave had this, or any other kind of shells, massed together in such a way. Resting on top of the shell deposit on one side of the room were the scattered remains of Burial 67, an adult male (Fig. 1.32).

**Room 34**

Room 34 was a short, low passageway that opened from Room 33. The floor near the entrance was of mud with some scattered shells from Room 33, while the remainder of the floor was of travertine and was covered with a thin film of water. The passageway continued only for a short distance before it constricted too much for human passage. Cave formations were present within the passage and activity was high. Bat guano and several bats were found near the end of the passageway.

In the mud of the floor at the entrance to Room 34 were seven indistinct footprints, which led in and out of the room (Fig. 1.33). These were of bare feet, about 22 cm long and 7 to 12 cm wide. The prints were about 10 cm apart. It is impossible to state whether these footprints represent the last aboriginal visitor to this room or a later intruder. All segments of the cave past Room 15 appeared to be untouched by modern visitors, so perhaps the footprints were aboriginal.

Burial 68 was located just past the entrance of the room. The burial, which was badly scattered, represented an adult male.

Burial 69 was about 40 cm away from Burial 68, and was the scattered remains of an adult female.

Burial 70, an adult female, was located near the end of the passageway. The burial rested on its back with the bones in anatomical order and the legs drawn slightly up. Near the burial was a flint projectile point or knife, which was recorded and later replaced.

No ceramic sherds were noted within the passageway.

**Room 35**

Room 35 was a passageway that connected Room 32 to Room 36. The passage started at a large, deep-water pool, which blocked the room at that point and provided an arbitrary end to Room 32. Midway to Room 36 another water pool, this one shallow and wide, blocked the chamber. After crossing this pool the floor became dry as it sloped upward to the entrance of Room 36. The floor of the room around the water pools was covered with a thick travertine deposit, and cave activity in this segment was quite high. Small formations were present throughout the passageway, and anterior to the second mentioned shallow water pool, the aboriginal explorers had broken through a natural wall of flowstone columns and formations.

In the first large water pool in Room 35 was a burial in an excellent state of preservation (Fig. 1.34). This, Burial 71, was of an adult male whose remains were scattered in the mud and muck along the bottom of the pool. The skull...
exhibited fronto-occipital deformation and the two lower central incisors were mutilated in a variant of Romero’s (1960) type B5. A pathological hole was also present in the skull vault and may have been the immediate cause of death. A few fragments of a medium slate jar were also found within the water pool. On the other side of the pool, and resting partially in the water, was Burial 72. This was the remains of an adolescent, which had been extended on its back with the trunk and legs resting in the water. Burial 73, a young child, was scattered with fragments of a slateware jar in the center of the passageway beyond Burial 72.

After passing through the hole broken in the wall of the formations, the shallow water pool was reached. In this pool were the badly scattered remains of Burials 74, 75, 76, 77, and 78. These were the bodies of three young adult males, one adult female, and one adolescent. No pathology was noted. Burial 79, an infant, was located on the margin of the opposite side of the pool. Many of the bones from these burials, just as with Burial 71, were in an excellent state of preservation. As most of these remains were completely submerged, this preservation was no doubt the result of the high mineral content of the cave water and the constant environment.

Nine additional burials were found between this water pool and the entrance to Room 36. This area was almost devoid of ceramic remains and contained only fragments of a cylindrical vessel similar to one recovered from Room 21, 37 fragments of a medium slate jar, and an unslipped striated utility jar (Fig. 1.35). This jar was on its side at the entrance to Room 36, and like its similar counterpart in Room 32, had been broken by contact with some projecting stone. In this case, only two small holes were present on one side. The jar appeared to have been once covered with a dark blue pigment.

The burials from this section of the passageway were badly scattered and highly fragmentary. Burial 80 was a child with a mutilated central mandibular incisor (type A2) and two mutilated lateral mandibular incisors (type B5) (Romero, 1960). An unworked small Oliva shell and two matched shell tubular beads, 0.6 cm in diameter and 1.0 cm long, were found with the skeletal remains.

Burials 81 and 82 were scattered together and indicated an adult and an infant. Burial 83 was a young adult female. Burials 84, 85, and 86 were mixed together and represented an adult and two children. With these burials were an unworked small Oliva shell and a flat shell button, 1.0 cm long and 0.5 cm wide, with a biconical perforation.

Burials 86 and 87 were scattered near the intact utility jar, and represented an adult and child. Dental mutilation of type A2 (Romero, 1960) was present on one of the adult’s lower central incisors. With the adult remains were also 16 Oliva shell tinklers, seven small shell disk beads, four unmodified deer teeth, and two shell earplug backings similar to those recovered from Burial 1 in Structure 7.

### Room 36

Room 36 was a large, irregular room, which opened from the passageway of Room 35. The floor of the room was composed of monolithic limestone and massive...
breakdown. Two drip areas were noted in the approximate center of the room, but only a few formations had resulted from cave activity. The ceiling was a large solution dome with several small passageways leading from the walls of the room. Fossils were exposed in much of the limestone around the room. Numerous fossil shells had eroded from this stratum and were found around the walls.

Five burials were discovered within the room. Burials 89 and 90 were near the entrance to Room 35. Burial 89 was the disturbed remains of an adolescent. Dental mutilation was present on the following recovered teeth: maxillary canine, type C4; mandibular central and lateral incisors, type Al (Romero, 1960). Burial 90 was the fragmentary remains of an adult, sex undetermined. Dental mutilation of type Al was noted on all canines and the mandibular central and lateral incisors (Romero, 1960). No maxillary incisors were recovered.

With these two burials were one Oliva shell tinkler and the scattered fragments of a Tepeu-like cylinder vase, already mentioned in the introductory section on the cave complex (Fig. 1.36). This piece had been covered with a thin plaster coating and a polychrome panel painted upon the stucco. It appears that the vessel was deliberately smashed, but it is impossible to say whether this occurred in conjunction with the burials or at a later time.

Near the center of the room were two scattered burials. Burial 91 was an adolescent, and with the burial were fragments of a ceramic disk and a shell button, 3.1 cm long and 2.7 cm wide. The disk was 14.1 cm in diameter and 1.1 cm thick, with a 0.8 cm biconical perforation in its center and at least two smaller biconical perforations, which entered the sides and exited on the back. The front was painted bright red with a white painted line 1.0 cm wide circling its edge. On the back a raised rim, 1.7 cm wide, followed the edge. This item appeared to be some form of ceramic plaque, which could either have been attached to something, or have had other smaller items attached to it. The shell button from the burial did not seem to be a part of the disk. The other burial, Burial 92, was located nearby and represented an adult female. With the burial were two gray to black obsidian blades, which were 5.3 cm and 5.2 cm long with a slight amount of use flaking on their edges, and a subspherical jade bead 1.0 cm in diameter with a biconical perforation.

Burial 93 was an adolescent in a flexed position on its right side, located in a small chamber, which opened from Room 36. No cultural material was found within the chamber.

Cultural material was found in Room 36 in only a few other locations besides with burials. Along one wall were the scattered remains of a medium slate bolster-rim basin. With these sherds were twelve Oliva shell tinklers, a 15 cm long fragment of a deer cannon bone awl, and a ceramic disk similar to that noted with Burial 91. This disk was 16 cm in diameter with beveled edges and a biconical perforation in the center. The back was covered with a white stucco or painted coating, and the front had at least three coatings of which the last had been a bright red. Next to the disc were six flat iron pyrite fragments. The largest fragment was about 2.0 cm square and 0.1 cm thick, and each had a smooth highly polished surface. There is no doubt that these are mosaic fragments which could have been attached to the ceramic disk, although no evidence of such an attachment was noted on the disk.

Nearby was an amorphous mass of clay, which had covered a small rounded cloth frame. The distinct impressions of a tightly woven cloth, with large strands about 1 mm apart and smaller threads between, were present on the underside of several large clay lumps in this mass. Six deer canine teeth were found near one end of the mass, some still embedded in the clay. This item could perhaps represent the base of an animal headdress once constructed on a cloth frame. Animal headdresses are pictured in several Maya media, with those in the murals at Bonampak (Ruppert et al., 1955) being perhaps the best-known examples. In the frescos from the northern wall of...
Room 2 at that site a virtual circus of animals is represented in the headgear of the leading warriors. Perhaps then, in this room of the cave complex of X-Kukican, this unfired clay mass represents the major nonperishable remains of what was once a similar animal headpiece.

The only other cultural material noted within the room was on the floor of a small chamber in the eastern wall. On the travertine floor were two gray to black obsidian blades not over 2.3 cm long, two small iron pyrite fragments similar to those reported elsewhere in the room, a 0.6 cm long shell tubular bead with biconical perforation, a 0.5 cm shell disk bead with conical perforation, a 0.8 cm in diameter jade subspherical bead with a biconical perforation, and a 0.5 cm shell disk bead with conical perforation. These indications were of a once wooden object about 75 cm long, which could have been a short pole and a thatched mat. The imprint of the mat measured 70 cm by 30 cm and was woven of material 3.0 mm wide with a thatched mat. These indications were of a once wooden object about 75 cm long, which could have been a short pole and a thatched mat. The imprint of the mat measured 70 cm by 30 cm and was woven of material 3.0 mm wide with 2.0 to 2.5 cm wide spaces between strands. At each end of the mat were about 100 small Oliva shell tinklers. Most of these tinklers were 3 cm to 7 cm long and were formed by removal of the tip of the apical spire. A bone needle fragment, 5.6 cm long with a biconical perforation for an eye, was located near one end of the mat.

Exploration conducted along a small, highly active passageway, which opened about 8 m above the floor of Room 36 and extended about 18 m in a general northerly direction, revealed a concentration of small shell disk beads. These beads, numbering about 20 to 25 specimens, were found lying on the floor near several projecting stalagmites. As the beads appeared similar and as it was necessary to crawl at this point in the passageway, perhaps they represented a single assemblage, which adorned an aboriginal explorer until the strand upon which they were strung was broken by a rough cave formation. In any case, these were the only items noted within this passageway, and it soon became too constricted for human passage.

SUMMARY OF THE CAVE COMPLEX

The ceramic remains identified within the cave complex are indicative of a time range from Formative to the Pure Florescent, which demonstrates the early establishment and subsequent long sequence of activity in the general area. Perhaps the cave of X-Kukican was the center of much of this activity, for from ceramic evidence it is apparent that Formative groups visited certain sections near the entrance within the cave complex. These ventures into the cave could well have been in search of water. As chambers close to the mouth of the cave which were once high in water activity dried up or became less active, it was necessary for humans to push farther into the back reaches of the cave. Observation and ceramic counts showed that Formative sherds dwindled and stopped within the cave at about Room 15, and Formative and Tzakol sherds were the only ones recognized as covered or imbedded in travertine deposits in rooms once active, such as Rooms 4 and 5. Therefore, it is possible that by the Early period (Tzakol), if the cave was not used for religious purposes, the quest for a water source was still a motivating force. Ceramic evidence indicates that by the early Early period much of the cave was known, and that by the late Early and Pure Florescent periods humans had certainly visited most of the presently known area of the cave. The water pools in the back region of the cave, about 350 m from the entrance, were evidently in frequent use during this later time period, and the majority of the burials, ash and cache areas, and other features were perhaps the results of this use.

Many questions and problems are still open in respect to the cave complex and the material therein. No parallel to this cave is known to exist within the Maya area today. Many caves within Yucatán are reported to have contained artifact and skeletal material, but it is apparent that not one has contained the amount of remains within the cave of X-Kukican. Nor have the remains within other caves existed in such an undisturbed state, untouched by modern exploration. As at least one other author (Thompson, 1959) has pointed out, some caves figured prominently in Maya culture even as late as the Conquest. Cave water has also been considered important and necessary for use in certain relatively recent ceremonies. In the cave of X-Kukican the collection of water seems to be primarily of an economic nature. However, from the numerous and various features recorded it is evident that many additional activities were connected with the cave and the people who once trod through its dark reaches.

ARTIFACTS

Artifacts were recovered in limited numbers from almost all areas investigated at the Archaeological Zone of X-Kukican. Most, however, were encountered within the cave complex itself. The majority of the artifacts reported in this chapter are of late Early period or Pure Florescent date. A few of the specimens described within this section were not removed from the cave. Those mentioned in detail in the sections discussing the cave complex will not be described again in this chapter, in which the emphasis is upon the actually recovered artifacts. These artifacts were labeled and catalogued, and were then placed in storage at the Instituto Yucateca de Antropologia e Historia in Merida.

The artifact material was categorized following the lines of natural material, rather than by more functional divisions of use or type of artifact. The material has been considered in this manner to aid in comparative studies and to further continue the general method of description used for Maya artifacts in the past.
ARTIFACTS OF LIMESTONE

Metates
56 specimens (Figs. 1.37, 1.38).

Description. These were all examples of the heavy grooved or legless trough type of metate. The natural material used was local limestone. Most of the metates were of slightly worked and often crude stones. Examples recorded from the cave complex were better worked and exhibited a higher degree of final finished shape than those from the other areas. Several in Bluff Shelter No. 3 were found on large breakdown fragments and exposed bedrock. A single occurrence of two grooves or troughs on one large stone was found in Bluff Shelter No. 3.

Context. Scattered over the acropolis, in the cave complex, and within Bluff Shelters No. 1 and 3.

Comment. These appeared to be typical of the northern Maya area. They would all perhaps date from Late Early period to Pure Florescent times.

Mortar(?)
1 example.

A round depression on a slightly faced wall stone from Bluff Shelter No. 1 was perhaps a mortar.

Limestone Manos
11 specimens.

Description. These represented three intact manos and eight mano fragments. Ten of the manos were blunt-ended and slightly tapered. The length of the intact specimens varied from 14.4 to 21.8 cm and the width from 5.6 to 6.1 cm. In cross-section, these were round-flat to oval, suggesting use wear and modification. Two fragments were later reused as hammerstones and showed battering marks. One badly eroded fragmentary specimen of a knob-ended mano was also recovered. All specimens were of local limestone.

Context. The intact examples were from Rooms 1 and 24 in the cave, and near Metate No. 1 on the acropolis. The knob-ended mano was recovered from the surface near Structure 21. The other fragmentary manos were from test units within Bluff Shelter No. 1, Structures 3 and 8, and Room 1 in the cave.

Comment. These were identical to manos reported from other sites in Yucatán. The blunt-ended type was evidently used in conjunction with the heavy grooved type of metate so common at X-Kukican. The knob-ended mano could not have been used with the metates recorded from the site, and could perhaps represent a later intruder at X-Kukican.

Limestone Smoothing Stones
6 specimens.

Description. These represented small, fine-grained limestone pebbles which showed some slightly rubbed areas. No definite planes were present, as though all sides were used almost equally. A slight amount of plaster or stucco was present on one specimen.

Context. Room 1 of the cave, the floor of Bluff Shelter No. 1, and Unit 15 in Bluff Shelter No. 3.

Comment. These stones were perhaps used as finishing stones on plaster or stucco. Similar items have been reported from Maya sites.

Limestone Conical Polishing Stone
1 specimen.

Description. This was a conical, fine-grained limestone artifact 3.2 cm in diameter and 2.2 cm high (Fig. 1.39N). The artifact was well worked and used, and had a definite flat grinding surface.

Context. The specimen was from Cache 22 in Room 24 of the cave.

Comment. This item was similar to the limestone smoothing stones reported from X-Kukican. However, it was much better formed and had a well-defined polishing or smoothing surface.
Figure 1.38. Heavy grooved metates from the Archaeological Zone.
Figure 1.39. Worked bone and stone.
Limestone Bark-Beater
1 specimen.

*Description.* This was a fragment of an oval, fine-grained limestone bark-beater (Fig. 1.39O). The parallel sides were cut with longitudinal lines, which were V-shaped in cross section. A 0.17 cm groove for hafting evidently encircled the tool on three sides.

*Context.* Surface of Bluff Shelter No. 1.

Limestone Bead
1 specimen.

*Description.* This fragment of a subspherical limestone bead was 2.0 cm in diameter and 1.8 cm high, with a conical perforation. The outer surface of the bead had been covered with a light to dark, slightly mottled blue-green pigment.

*Context.* Room 15 in the cave.

*Comment.* The pigment covering the outer surface of this bead could well be an attempt to imitate jade. Edward Thompson (1897b: 12, 13, 17) reports beads of “lime cement” painted green perhaps in imitation of jade, and Shepard and Andrews (1963) discuss in detail several imitation jade flange-type ear ornaments.

Limestone Problematic Object
1 specimen.

*Description.* This was a worked, local limestone object, which resembled a half sphere, 46 cm in diameter and about 30 cm high. Pecked and ground marks were clearly visible on the surface, and the flat base was relatively rough.

*Context.* Room 1 of the cave.

*Comment.* This item did not appear to be an element from the facade of a structure, nor could any other utilitarian or ceremonial purpose be attributed to it.

ARTIFACTS OF FLINT

Flint Flakes
86 specimens.

*Description.* There was considerable variation present in this sample. Much of this material represented local flint, but some of the good quality pieces could have been import items. The flakes represented the wastage from percussion flaking. Thirty-seven of the flakes showed secondary chipping on one or more edges (Fig. 1.40B, C, E). This appeared to be more in the form of flaking from the use of the sharp edge than from secondary flaking to prepare an edge.

*Context.* Most of the flakes were from various excavation units, with 48 examples from Unit 2. The other units contained only a few flakes, as did the general surface of the acropolis and Bluff Shelter No. 1. Four were from the cave entrance, and five from within the cave itself: four from Room 1 and one from Room 8.

Flint Cores
3 specimens.

*Description.* These were irregular flint cores, from 6.5 to 8.0 cm long, from 5.3 to 6.0 cm wide, and from 2.7 to 3.3 cm thick. Large flakes and blades had been struck from the sides, and the striking formed natural edges. Each core had then been used as an implement and the edges showed some use flaking and pounding scars.

*Context.* The surface around the entrance to the cave complex and Bluff Shelter No. 3.

Flint Scrapers
3 specimens.

*Description.* These were flint chips and large flakes, which had a prepared uniface edge along one or more sides (Fig. 1.40A, D). As such, a somewhat crude yet effective scraper was achieved by the reuse of what otherwise would be flint wastage.

*Context.* Cache 9 in Room 15 of the cave, and Bluff Shelters No. 1 and 2.

Flint Chipped Chopper
1 specimen.

*Description.* This was a large percussion flaked tool of white flint, 12.5 cm long and 8.5 cm wide (Fig. 1.41G). Both ends indicated some use as a pounding or chopping tool.

*Context.* This artifact was encountered above the floor of Structure 8.

Flint Pick(?)
1 specimen.

*Description.* This was a crude axe or pick, which showed large percussion flaking. One end tapered to a rough point and the other terminated rather abruptly in a flat surface (Fig. 1.40G). Both ends indicated heavy use, perhaps as a result of pounding.

*Context.* Room 27 of the cave.

*Comment.* This implement was perhaps hand-held and could have been used as a pounding tool. Its location on a small ledge in the cave would imply that it was used in the cave, perhaps in securing calcite.

Flint Celts
4 specimens.

*Description.* This sample represented one intact celt and fragments of what appeared to be three similar implements. The celts were formed by percussion flaking, with some grinding and polishing apparent on the blade ends (Fig. 1.41F). One specimen did not appear to have grinding on the blade, but was, however, quite fragmenary. Another of the fragments had some use flaking visible on two edges, and seemed to have been used as a scraper after the original celt had broken.

*Context.* Illustrated specimen was from Cache 1 in Bluff Shelter No. 3; others were from Structure 8, and Bluff Shelters No. 1 and 3.
Figure 1.40. Flint and obsidian artifacts.
Figure 1.41. Flint, obsidian, and limestone artifacts.
Figure 1.42. Flint projectile points or knives. The dashed lines on A-D delineate the extent of red pigment present on the blade portion.
Figure 1.43. Flint projectile points or knives.
Flint Stemmed Projectile Points or Knives
10 specimens.

Description. These were slightly tapered, stemmed, biface flint points or knives. The basal ends of these stems were normally rounded, but in three specimens they were formed by single hinge fractures. Large percussion scars were present on all examples, and most had fine secondarily retouched edges. The material used in all examples was a honey-colored flint. Four examples found together (Fig. 1.42A-D) had traces of a white lime material on their stems, and both sides of the blades were covered with a red pigment. This pigment stopped at or near the stems in a rounded outline, and perhaps represented the extent of the original shaft or hafting material.

Context. The specimen illustrated in Fig. 1.41A was from the surface of Structure 9; the rest were from the cave complex. Of those from the cave, the specimens illustrated in Fig. 1.42A-D were from Cache 6 in Room 15; the one shown in Fig. 1.42E was from a crevice in Room 24 near Cache 24; that shown in Fig. 1.43A was from Cache 8 in Room 15; that shown in Fig. 1.43B was from the floor of Room 29; that shown in Fig. 1.43C was from the floor of Room 34 and was not removed from that room; and that shown in Fig. 1.41B was a fire-cracked specimen from Cache 1 in Room 8.

Comment. The four examples with haft markings are unusual in that similar traces are rare. Some projectile point specimens from the sacrificial cenote of Chichen Itza retained traces of a gum substance with which they were hafted to their shaft (Pollock et al., 1962:425).

Flint Projectile Points or Knives
33 fragments.

Description. These represented fragmentary projectile points or knives, which had been subjected to extreme heat in Cache 1 in Room 8 of the cave. The fragments indicated at least four large points or knives (Figs. 1.42F, 1.41D), which were perhaps once stemmed blades similar to those recovered from other areas in the cave.

Context. Cache 1 in Room 8 of the cave.

Leaf-Shaped Flint Projectile Point or Knife
1 specimen.

Description. This specimen was a biface leaf-shaped point or knife of a honey-colored flint (Fig. 1.43D). Large percussion flaking along with some fine secondary flaking was present, and the pointed end was fine and sharp.

Context. Cache 25 in Room 24 of the cave.

Comment. This type of implement was perhaps used as a non-hafted knife rather than as a projectile point. Many similar examples are known throughout the Maya area, although most are larger than the X-Kukican specimen.

ARTIFACTS OF OBSIDIAN

Obsidian Blades
25 specimens.

Description. These were all fragments of gray to black obsidian blades from 1.0 cm to 11.0 cm long, with the bulb of percussion present upon many specimens (Fig. 1.40F, right). Some form of use flaking was noted on each specimen, with certain examples showing extensive use.

Context. Three specimens were from Unit 2, while the rest were from various caches and rooms in the cave.

Obsidian Core
1 specimen.

Description. This small core of gray to black obsidian had heavy grinding on the sides and one end (Fig. 1.40F, left and center). The other end had a rather recent-looking break scar.

Context. Room 22 of the cave.

Comment. This core appeared to have been reused as an abrasive stone. Obsidian cores are known from many sites throughout Middle America, and some are reported that have been reworked. This reworking is normally to produce an eccentric form. However, at Piedras Negras, an obsidian polisher is reported that was formed from a reworked core (Coe, 1959:13).

Obsidian Projectile Point
1 specimen.

Description. This specimen was a fragment of an obsidian projectile point (Fig. 1.41C). The point was 4.8 cm long and was broken by a hinge fracture near what was perhaps the base.


Obsidian Inlay Piece
1 specimen.

Description. This was a small disk, 0.9 cm in diameter and 0.4 cm thick, which had been flaked from a gray-black obsidian blade.


Comment. This disc could have been used as an inlay piece, perhaps to serve as an eye.

ARTIFACTS OF JADE

Jade Pendant
1 specimen.

Description. This light green jade pebble had been worked into the form of a human head (Fig. 1.39M). Lines which formed the headpiece and nose were the results of light grinding, and the eyes were shallow conical perforations. A biconical perforation for suspension pierced the piece near the top of the head.

Context. Cache 5 in Room 15 of the cave.
Jade Ear Plug Stem (?)  
1 specimen.  
Description. This was a short tube of jade, 1.3 cm high, with a slightly flared end (Fig. 1.39J). A large biconical perforation penetrated the item, and the sides were smooth and well polished. Slight traces of a red pigment were present on both the outer surface and the perforation.  
Context. Cache 25 in Room 24 of the cave.  
Comment. This tube would be too large to have been a bead, and although no small perforations were present for attachment, it could well have served as the stem of a compound earplug (Kidder, 1947: Fig. 26).

Jade and Other Stone Beads  
30 specimens.  
Description. Twenty-two of these specimens were subspherical beads ranging from 0.6 cm to 3.4 cm in diameter, and had biconical perforations. Eighteen were of dark to light green jade, and four were of a dark brown unidentified stone.  
One light green jade disk bead was 0.5 cm in diameter and 0.2 cm thick, having a biconical perforation. One round, light green jade tubular bead fragment was 0.4 cm long, and had a conical perforation. Six slightly squared, light green jade tubular beads had biconical perforations. The length of the slightly squared beads varied from 1.5 to 2.3 cm, and the diameter varied from 0.5 to 0.7 cm. Four beads had two lightly ground parallel lines which circled the bead near one end, and two beads had one similar line near one end.  
Context. Subspherical beads were from Caches 7 and 10 in Room 15 of the cave, from Room 36 in the cave, and from Burial 1 in Structure 7. The disk example was from Cache 22 in Room 24, the round tubular bead was from Room 24, and the squared tubular beads were from Room 21 of the cave.

Quartzite Ear Flange Ornament  
1 specimen.  
Description. This was a fragment of a quartzite ear ornament. Both ends were slightly flared, with faint cut lines on one end (Fig. 1.39L).  
Context. This artifact was from Cache 1 in Room 8 of the cave.  
Comment. This type of ornament is reported at several locations within Middle America. A similar intact bone example was recovered from Room 1 of X-Kukican cave.

Stone Ear Plug Component  
1 specimen.  
Description. This was a small hexagonal item of an unidentified hard brown stone (Fig. 1.39H). The specimen was ground and polished into shape.  
Context. This specimen was from Cache 1 in Room 8 of the cave.  
Comment. This was perhaps a component part of a compound earplug. The base and sides were not as well polished as the rest of the piece, so it was possibly seated into place with only the top exposed. Certain somewhat similar items made from shell are known from the Maya area.

Iron Pyrite Inlay Pieces  
9 specimens.  
Description. Small, flat worked fragments of iron pyrite were highly polished on one side and were used as inlay or mosaic elements. The largest specimen was about 3.0 by 3.5 cm and 0.5 cm thick, with beveled edges.  
Context. The large element was from Room 1 in the cave, while the others were from Room 36.

Unworked Calcite Crystals and Cave Formations  
Numerous.  
Description. These were fragments of cave formations, which had been broken and removed from the cave or the bluff shelters. This was perhaps done to secure calcite for use as a ceramic tempering agent. In the ceramics observed from the Archaeological Zone, however, such tempering material was visible to the naked eye only in certain examples of unslipped striated utility jars.  
Context. The specimens were from the surface of the acropolis and all bluff shelters. Cave formations were also found in most of the excavated units.

ARTIFACTS OF MISCELLANEOUS STONE

Worked Onyx–Marble  
1 specimen.  
Description. This was a small, flat triangular object 2.3 cm long and 0.6 cm thick (Fig. 1.39K). It appeared to be a fragment from the wall of a stone vessel. All sides were ground smooth, and a finer polish was present on the flat sides.  
Context. This specimen was from Cache 22 in Room 24 of the cave.  
Comment. This could be a reworked fragment from an onyx-marble vessel, which was kept because of the natural beauty of the stone, and so reworked and polished. Although marble vessels are rare in Yucatán, Pollock and others (1962:428) report some examples from Uxmal.

ARTIFACTS OF BONE

Bone Pins  
4 specimens.  
Description. These represented fragments of pins, which were worked from bone splinters. The cross-section in three specimens was flat and in the other slightly rounded. The method of manufacture was by grinding, with a later slight polish.  
Of the recovered examples, two represented plain
midsections, one the point and a fragment of the shaft, and one the carved end and a shaft fragment.

Of the two decorated specimens, one (Fig. 1.39G) was the carved end and a fragment of the shaft, which seemed to represent a hand and arm. The other (Fig. 1.39D) had a V-shaped cut across the shaft near the broken end.

Context. The carved specimen (Fig. 1.39G) was from Cache 1 in Room 8 of the cave, and the other decorated specimen (Fig. 1.39D) was found lying on the floor of Room 21. The two midsections were from Caches 8 and 9 in Room 15.

Comment. Similar bone pins are known from many Maya sites. The carved bone hand and arm pin is similar to some pointed bone and wood shafts from the cenote at Dzibilchaltun.

Bone Needles
2 specimens.
A bone needle with a biconical eye perforation was noted from Room 36 of the cave. The cross-section was oval. The second needle was fragmentary and was found in Room 24.

Tubular Bone Objects
7 specimens.
Description. These were small tubes worked from bone fragments, which were too long to represent bone beads. Three of these were constructed from bird bones and the others from bones of small mammals. All were in a fragmentary condition. Five exhibited some form of carved or cut decoration. Partially intact ends on specimens exhibited V-shaped cuts, which were ground down to an even edge. Most exterior surfaces were ground and polished.

Of the decorated specimens, three had V-shaped cuts which encircled the tube (Fig. 1.39B, C), while two had finely incised figures on their surfaces (Fig. 1.39E, F). The incised design on one of these represented a standing male with a headpiece. The other example was too fragmentary for the design to be deciphered. One of the plain bone tubes had a small conical perforation, which penetrated the bone.

Context. The incised tubes, one of the V-shaped line decorated tubes, and the perforated plain tube fragment were from Cache 1 in Room 8 of the cave. The decorated bird bones illustrated in Fig. 1.39B and C were from Cache 22 in Room 24, while the plain bird bone tube was from Test Unit 16 in the central plaza.

Comment. Plain and decorated tubular bone specimens have been reported from many Maya sites. The incised tubes such as those from Cache 1 in Room 8 of the cave are unique in that none are mentioned from the Maya area. Although the objects could have been used as large tubular beads, it is more likely that they were parts of some form of unknown composite object.

Bone Beads
3 specimens.
Description. These were two beads formed from small animal long bones. Both were well worked and had traces of what had been a high polish. The perforation in one was the smoothed natural cavity. The other (Fig. 1.39A) was a biconical perforation. The third bone bead was made of a bone splinter and had been used in a repair of a shell tubular bead. The bone bead was 0.5 cm long and 0.3 cm in diameter, and had a cylindrical perforation.

Context. Cache 1 in Room 8 and Room 24 of the cave, and Burial 1 in Structure 7.

Comment. Various bone beads, normally of bird bones, are reported throughout the Maya area. This specimen was in no way unusual except that it did demonstrate great care in finish.

Perforated Animal Teeth
2 specimens.
Description. Both teeth were modified by biconical perforations in the root area of the tooth. The specimens appeared to be dog molar teeth.

Context. One was from Burial 1 in Structure 7, and the other from Cache 8 in Room 15 of the cave.

Comment. These specimens were quite similar to others reported in the Maya area. A number of loose deer teeth and a dog canine tooth were also noted at several locations within the cave. However, no modifications were present on these. The perforated examples served as small ornaments, perhaps strung with various types of beads.

Worked Deer Phalange
1 specimen.
Description. A mature deer phalange had been ground flat on its distal end, and then two V-shaped cuts were made to form an X on the flat end.

Context. Worked deer phalanges are reported as perforated pendants from the Maya area. However, no item similar to the one reported here has been described. This specimen may have been an ornament, but more likely it was made as a specialized tool or a crude plaything.

Bone Awl
1 specimen.
This specimen was the distal end of a deer metapodial bone which had its shaft worked to a long point from an oblique cross-cut. The awl was found in Room 36 of the cave and was not removed.

Bone Ear Flange Ornament
1 specimen.
Description. A short flange type of ear ornament (Fig. 1.39I) was constructed from the shaft of a mammal long bone. Both ends were slightly flared, with four ground notches on one end, which produced a flower or petal
effect. The specimen was covered with a red pigment.

**Context.** Surface of Room 1 in the cave.

**Comment.** This was a form of the flange-type of ear ornament, which is represented in various media in Middle America. A similar solid bone ear-plug with jade inserts has been reported from Baking Pot in British Honduras (Bullard and Bullard, 1963:35). However, most examples reported appear to be more similar to the specimen from X-Kukican.

**Stingray Spine**

1 specimen.

**Description.** A charred and fragmentary stingray spine, 3.1 cm long and 0.4 cm wide.

**Context.** Cache 1 in Room 8 of the cave.

**Comment.** Stingray spines have been recovered from various Maya sites. They appear often in cache and burial locations in a relatively unmodified state.

**Cut Mammal Bone Wastage**

2 specimens.

**Description.** These two specimens of small mammal bones had several V-shaped cuts each, although no other modifications of the bone were present. They would seem to represent unused bone fragments, which were left after bone tubular objects had been made from small animal long bones.

**Context.** One was from Level 6 in Unit 11 in Bluff Shelter No. 1, and the other from Level 9 in Unit 15 in Bluff Shelter No. 3.

**Comment.** Similar bone specimens are represented in many collections within the Maya area, and human long bones with similar cut marks have also been recovered from sites such as Uaxactun (Kidder, 1947:58-59) and Mayapan (Pollock et al., 1962:375).

**Miscellaneous Worked Bone Fragments**

174 specimens.

These charred fragments were recovered from Cache 1 in Room 8 of the cave. They were too badly burned and fragmentary to be identified as any particular kind of bone object. Most seemed to represent mammal long bone shafts, and were perhaps once tubular items similar to those recovered from this cache.

**Unworked Animal Bones**

Numerous specimens.

It is perhaps fitting to state at this point that a small sample of animal bone not modified in any manner was collected from many of the various units excavated. This material, on the whole, seemed to be deer more than any other animal, although no detailed study was made of the material.

**Human Skeletal Remains**

Besides the human skeletal remains within the cave complex and Burial 1 in Structure 7, a fragmentary mandible and zygoma were recovered from Level 10 in Unit 13.

**ARTIFACTS OF SHELL**

**Carved Animal Shell Pendants**

3 specimens.

**Description.** These three specimens represented what were perhaps two deer and one frog. All were manufactured from fragments of *Strombus gigas*.

One of the deer pendants (Fig. 1.44A) depicted the animal looking back over its shoulder. The legs of the animal appeared bent, in a human position. The specimen was intact except for a small old break present at the top of the back leg. The lines which delineated the legs and face were ground and cut, and the eye was a shallow conical perforation. A slight hole penetrated the piece under the neck of the animal and was formed by at least five closely spaced conical holes, which were drilled from the back. An area of red pigmentation about 1.8 by 2.8 cm was present on the back of the pendant. Two small conical holes, perhaps for suspension, were drilled from the back, and a larger biconical perforation was near them. There was some slight string wear around these perforations.

The other deer pendant (Fig. 1.44B) was similar in execution, and again the animal was looking back over its shoulder. Lines were formed by grinding, and the eye was a conical perforation. A large biconical perforation was apparent in the neck region, and two smaller biconical perforations had been drilled for suspension. These holes entered from the edge of the piece and exited on the back. Therefore the holes were not seen from the front as they are depicted in Fig. 1.44B. The illustration instead indicates their location on the back of the piece.

The shell frog was formed from a flat segment of shell, and the lines on the piece were formed by grinding (Fig. 1.44D). The eyes were shallow conical perforations, and the two suspension holes were biconical and indicated some string wear.

**Context.** The deer pendants were from Cache 10 in Room 15 of the cave, while the frog was from Cache 24 in Room 24.

**Comment.** Various shell animal pendants are known from the Maya area. Shell frogs appear frequently in late Early period and Pure Florescent context in Yucatán, but are not reported outside that area. Larger shell pendants similar to the deer described here have been reported from a few sites outside of Yucatán. These examples are few; among the more notable are a snake from San José (Thompson, 1939), and a possible bird and snake from Baking Pot (Bullard and Bullard, 1963).

**Effigy Tooth Pendant**

1 specimen.

**Description.** This worked and ground shell pendant was perhaps made to represent an animal tooth (Fig. 1.44H).
Figure 1.44. Worked marine shell.
The item was provided with a biconical perforation for suspension.

**Context.** This artifact was encountered in Cache 22 in Room 24 of the cave.

**Comment.** Similar examples appear at several sites within the Maya area.

### Human Head Shell Pendant

1 specimen.

**Description.** This item resembled a human head in profile (Fig. 1.44E). The lines were cut and slightly ground. Remains of four biconical perforations were present. The piece was evidently reworked from a larger shell artifact.

**Context.** Cache 24 in Room 24 in the cave.

**Comment.** Several similar items have been recovered from Dzibilchaltun.

### “Horse Collar” Shell Pendant

1 specimen.

**Description.** This was a large oval pendant with a scalloped edge on its concave side (Fig. 1.44C). A deeply incised line encircled the interior of the piece. Two conical perforations penetrated the item for suspension, and at least nine shallow conical holes appeared on the back but did not penetrate the shell. String wear, not shown in the illustration, indicated that the string passed across the front from one hole to the other. Red pigment on the front of the piece covered an area 0.7 by 0.8 cm.

**Context.** Cache 10 in Room 15 of the cave.

**Comment.** The only other known examples of this form of tinkler appear at Mayapan (Pollock et al., 1962:386, Fig. 45e).

### Shell Tinklers with Parallel Cuts

5 specimens.

**Description.** These were small, flat rectangular shell objects with from 1 to 4 biconical perforations (Fig. 1.44F, 1.44G). In several of the examples, the cuts exposed more of the interior of the shell than in the illustrated example. All were otherwise unmodified, and all exhibited some charring.

**Context.** Cache 1 in Room 8 of the cave.

**Comment.** Shell rings similar to these are reported from various sites in the Maya area. These undoubtedly served as personal ornaments, yet it is not certain that they were finger rings.

### Shell Pendants, Form Largely Intact

3 specimens.

**Description.** These were marine shells, which had been modified only slightly for use as pendants. One was a drilled *Spondylus* shell, another a *Conus spurius* shell with a V-shaped suspension cut, and the third an example noted in situ within the cave but not described in the field notes.

**Context.** Room 22, Room 28, and Cache 5 in Room 15 of the cave.

### Shell Buttons

7 specimens.

**Description.** These were small, flat rectangular shell items with from 1 to 4 biconical perforations (Fig. 1.44F,
I). The sizes ranged from about 1.9 to 3.1 cm in length, and from 1.0 to 1.8 cm in width. One specimen had some lightly incised lines on two sides (Fig. 1.44I).

**Context.** These artifacts were from Burial 1 in Structure 7, Caches 22 and 24 in Room 24, and Rooms 29, 35, and 36 of the cave.

**Shell Disk**
1 specimen.

*Description.* A shell disk 1.7 cm in diameter and 0.2 cm thick with a conical perforation. The edges of the disc are beveled, as if the item had been used as an inlay piece.

*Context.* Burial 1 in Structure 7.

**Shell Rod**
1 specimen.

*Description.* This was a solid shell rod with blunt ends (Fig. 1.44O). Three V-shaped parallel grooves circled the rod in the approximate center.

*Context.* Found on the floor of Room 21 in the cave.

*Comment.* This rod could have been used in various ways as a personal ornament, perhaps as a cylindrical nose plug.

**Shell Tube**
1 specimen.

*Description.* This was a fragment of a hollow shell tube (Fig. 1.44P). The perforation was conical and rather skillfully executed.

*Context.* The surface of the entrance slope in Room 1 of the cave.

*Comment.* This perhaps served a purpose similar to that of the shell rod illustrated in Fig. 1.44O, or the tube could have been part of an earplug assemblage, such as is illustrated by Ruz (1955:Fig. 13a, c).

**Shell Beads**
195 specimens.

*Description.* One of the specimens was a subspherical bead which was 1.2 cm in diameter and which had a biconical perforation.

Ten of the specimens were round tubular beads 0.4 to 1.5 cm long and 0.4 to 0.7 cm in diameter. Seven of these had biconical perforations and three, conical perforations. One specimen, due to extreme wear at one end or to an imperfection in the shell at that point, had a small cut along the perforation. A small tubular bone bead, 0.5 cm long and 0.3 cm in diameter, had been placed within the perforation of the shell bead as a neat and effective method of repair.

One of the specimens was a barrel bead 0.9 cm long and 0.8 cm in diameter, which had a biconical perforation.

The rest of the 183 specimens were disk beads, which were 0.5 to 1.6 cm in diameter. Twenty-three of these exhibited wedge-like cross-sections. Five had cylindrical perforations, 88 had conical perforations, and 90 had biconical perforations.

**Context.** The subspherical bead was from Cache 1 in Room 8 of the cave; the tubular beads were from Burial 1 in Structure 7, and Rooms 21, 35, and 36 of the cave; the barrel bead was from Cache 24 in Room 24 of the cave; and the disk beads were from Burial 1 in Structure 7, Cache 5 in Room 15, Caches 22 and 25 in Room 24, and Rooms 21, 30, 35, and 36 of the cave.

**Shell Inlay Teeth**
2 specimens.

*Description.* These items were apparently an attempt to depict some form of teeth (Fig. 1.44R, S). One set had three prongs or teeth with shallow cut lines running down the teeth, and the other had four pointed prongs or teeth. The back of each specimen had indications of a white lime substance, perhaps residue from an adhesive material. The front side of each had indications of a red pigment.

*Context.* Cache 1 in Room 15 of the cave.

*Comment.* These were perhaps the upper and lower sets of teeth of some form of perishable effigy. The aboriginal adhesive utilized appeared to be similar to that present on several other artifacts found within the cave. No similar specimens are known from the Maya area, although various types and forms of inlay or inlaid items are known from Middle America.

**Shell Mosaic Fragments**
3 specimens.

*Description.* These were three small, squared fragments of shell about 1 mm thick. The size varied from 1.6 by 0.8 cm to 0.8 by 0.6 cm, and all were partially broken or chipped. Each face was ground flat, and one face was covered with a white lime coating.

*Context.* Cache 25 in Room 24 of the cave.

*Comment.* These were perhaps fragments of a mosaic, which was formed by a covering of small worked shell fragments, which were attached to a flat base by means of a lime adhesive.

**Small Shell Trumpet**
1 specimen.

*Description.* This was a small shell trumpet of the species *Strombus gigas,* with the spire and outer body whorl removed. A conical hole, 3 mm in diameter, was located about midway down the shell.

*Context.* Cache 1 in Bluff Shelter No. 3.

**Problematic Shell Objects**
2 specimens.

*Description.* Assigned to this category were two dissimilar shell artifacts. Fig. 1.44J illustrates a fragment cut from a large *Strombus* shell which appeared to have been a notched oval or circular object. Depicted in Fig. 1.44Q is a small, squared rod with a rounded top and a conical perforation present in its base. The lines which circled the object were formed by V-shaped cuts.
**Context.** The fragmentary shell artifact was from Cache 1 in Room 15, and the shell rod from Cache 24 in Room 24 of the cave.

**Unmodified Marine Shells**
Over 200 specimens.
Unmodified marine shells and shell fragments were found at several locations within all areas investigated. The majority of these were from the cave complex, including 173 shell fragments from Cache 1 in Room 8. The most common variety represented in the collection from this site was the *Oliva* shell. Specimens of *Strombus gigas* were the next most common shell, and specimens of *Marginella labiata*, *Marginella apicina*, *Chione cancellata*, *Spondylus*, and one large cowry were also found. One fragment of *Strombus gigas* had a small conical perforation, and another fragment had two small biconical perforations.

**ARTIFACTS OF PERISHABLE MATERIALS**

**Wood**
1 example.
A wooden item, perhaps a short pole, had once been present in Room 36 of the cave. All that remained was a dark outline left from its decay.

**Matting**
1 example.
What appeared to have been a small mat with shell tinklers on each end was noted in Room 36 of the cave complex.

**Cloth**
1 example.
Imprints of a woven fabric were visible on a clay object, tentatively identified as the remains of an animal-like headpiece, which was recorded within Room 36 of the cave.

**Organic substances**
Numerous examples.
Ash deposits were found throughout the cave, which were perhaps the residue of fires and torches used during aboriginal ventures within the cave.

In Cache 19 in Room 19, an organic residue was present within the unslipped striated utility jar. This material was mixed with the small marine shells in the vessel, and could perhaps have represented burned or decayed copal.

Around Cache 1 in Room 8 of the cave were many irregular lumps of material tentatively considered to be the residue from burned copal.

**CERAMIC ARTIFACTS**

**Solid Pottery Figurine**
1 specimen.
*Description.* This was a crude hand-modeled human figure (Fig. 1.45C). The figure, whose head was missing, was in a seated position, with punctated, studded arms meeting above the waist. The base had a small concavity from which three incised lines radiated to the back of the figure. The paste was dark brown to buff with no slip present.
*Context.* Room 1 of the cave.

*Comment.* Simple hand-modeled solid figurines with punctations and incising are common during Pre-Classic times (Rands and Rands, 1965). This specimen from X-Kukican perhaps belongs to the Formative period. This opinion is based upon artistic expression, as no microscopic analysis was made.

**Ceramic Plaques**
2 specimens.
*Description.* These were round ceramic plaques, which had once been painted. One had also been covered with iron pyrite mosaic elements.
*Context.* Both were discovered in Room 36 of the cave.

*Comment.* Somewhat similar pyrite-encrusted plaques, usually with stone backing, are well discussed from Kaminalijuyu (Kidder et al., 1946) and Nebaj (Smith and Kidder, 1951).

**Ceramic Pot Cover**
1 specimen.
*Description.* This was a fragment of a specially prepared ceramic disk (Fig. 1.45J). The edges were smooth and slightly beveled, and both sides were slipped in slightly fire-clouded orange-red monochrome. The paste and slip relate the specimen to the Formative period.
*Context.* Surface of Bluff Shelter No. 3.

*Comment.* Similar pot covers from the Formative period are known from Dzibilchaltun in northern Yucatán.

**Ceramic Balls**
3 specimens.
*Description.* Three solid ceramic spheres, 1.5 to 1.6 cm in diameter, were recovered in one excavation unit. The paste of the specimens closely resembled that of the slatewares. The surface finish was from black to a reddish brown.
*Context.* Unit 16.

*Comment.* These were perhaps pellets from some form of rattle. Similar items are reported throughout Middle America.

**Ceramic Mouthpiece(?)**
1 specimen.
*Description.* This was a fragment of a ceramic tubular object with a flared end (Fig. 1.45F). A cylindrical perforation ran longitudinally down the shaft and opened
Figure 1.45. Ceramic artifacts.
into a small conical depression at the flare. The paste and surface appearance resembled medium slate.

**Context.** Room 1 of the cave.

**Comment.** This item could have been the mouthpiece of some form of musical instrument such as a large horn. Absolute certainty is not possible because of its fragmentary condition. Edward Thompson (1897b:Pl. 13, 1c) illustrates a similar specimen from Labna.

**Ceramic Whistle**

1 specimen.

**Description.** This was a mold-made two-pitch ceramic whistle (Fig. 1.45E). Suspension holes were located on either side of the double concavities, and an elaborate mold impressed design decorated the upper surface. The design was partially eroded or worn away. The paste was of a dark brown to buff color and no slip was evident. The mouthpiece appeared to have been hand-modeled.

**Context.** Cache 22 in Room 24 of the cave.

**Comment.** An almost identical whistle was recovered by Edward Thompson (1897b:Fig. 3) from a chultun at Labna. Thompson’s example was in a better-preserved state than the specimen from X-Kukican, and when inverted, it represented a conventionalized mask. These almost identical specimens were perhaps from the same mold.

**Pottery Flute**

1 specimen.

**Description.** This was a small fragment of a ceramic tubular object, which would have been about 18 mm in diameter. The present length was 10 mm and the wall thickness 2 mm. The specimen had a lustrous black slip over a red core with a temper of fine limestone.

**Context.** Unit 2.

**Comment.** This was perhaps a fragment of a single tube clay flute.

**Ceramic Spindle Whorl**

1 specimen

**Description.** This was a plano-convex whorl about 3.0 cm in diameter with a design panel on one surface (Fig. 1.45H). The other surface was flat and undecorated. The paste was of a buff color, with traces of a transparent slip. The decoration on the upper surface was deeply incised, and consisted of four short arcs with two punctations below the arcs and a deep circumferential groove.

**Context.** Room 22 of the cave.

**Comment.** Spindle whorls are common in Middle America. The examples reported from Yucatán are normally more elaborate than the specimen described here.

**Perforated Sherd Disk**

1 specimen

**Description.** This is a fragmentary disk, about 3.4 cm in diameter, with a conical perforation in the center (Fig. 1.45G). The disk was made from a sherd of an unslipped striated utility jar, and the edges had been ground quite smooth in the process.

**Context.** Room 1 of the cave.

**Comment.** This was perhaps used as a spindle whorl. Similar examples are known throughout the Maya area.

**Unfinished Sherd Pendant**

1 specimen.

**Description.** This was a sherd from a polychrome vessel which had been partially reworked into a pendant (Fig. 1.45K). The edges of the pendant had been ground smooth, and three conical perforations 3 to 4 mm in diameter were started on the back of the item. The design on the front of the sherd was of dark red, cream, and black, and the color of the back was cream.

**Context.** Room 4 of the cave.

**Reworked Sherds**

5 specimens.

**Description.** These were potsherds which had been modified by grinding edges. Four represented a round or disk shape, with the diameters ranging from 1.4 to 5.0 cm. Two were made from Formative monochrome wares and two were from unslipped striated utility jars. The other specimen was a broken rectangular form, with the present fragment 4.5 cm long and 3.6 cm wide at the widest point. The sherd was a Formative monochrome.

**Context.** Two were from Structure 8, one was from Room 1 of the cave, and one each was from Bluff Shelters No. 1 and 2.

**Comment.** Reworked sherds are found at several Maya sites, usually in the form of small disks or larger round pot covers. The examples from X-Kukican perhaps represented four such small discs. The use of the rectangular form is unknown.

**Ceramic Ornament**

1 specimen.

**Description.** This was a ceramic item similar to a rosette. It was fragmentary, yet seemed to consist of three stacked circles of small clay balls (Fig. 1.45B). A reconstructed diameter would be about 3.2 cm. A cylindrical perforation pierced the center, and appeared to have been formed by pushing a small rod through the item while the clay was still in a plastic state. Traces of a post-fired blue pigment covered the outer surfaces.

**Context.** Unit 2.

**Comment.** This item was a portion of some form of ornament, perhaps an earplug.

**Ceramic Tubular Beads**

5 specimens.

**Description.** Three of these were large ceramic beads, from 1.3 to 3.0 cm long and from 0.5 to 1.2 cm in diameter. All had cylindrical perforations, and one appeared mold-
made (Fig. 1.45I). Paste and slip resembled medium slate. The other two examples were noted in Room 21 of the cave, and, as they rested in a small pocket of water, were too fragile to remove from the cave. They represented tubular beads about 1.5 cm long and about 0.5 cm in diameter.

*Context.* Burial 1 in Structure 7, and Rooms 1, 4, and 21 of the cave.

**Clay Headpiece Base**

An amorphous clay mass from Room 36 was perhaps the remains of a headpiece.

**CERAMICS**

The collection of pottery from the Archaeological Zone was quite extensive. Ceramic material was found in most excavation units, and a vast wealth of ceramics was spread throughout the cave complex and in the bluff shelters.

Basic sherd data from the excavation units are presented in Part 1, Appendix A. These collections represent the major recovered and analyzed ceramic samples and indicate an uninterrupted time span from the Formative to Pure Florescent.

This report on the ceramic analysis is not to be considered a final one. In truth, it is little more than an introduction with a few summary statements. The majority of the recovered ceramic material has been analyzed; however, the final descriptions will be provided in a later and more comprehensive report on the ceramics—a report which will also be based on additional ceramic samples both from stratigraphic excavations in the cave complex and from the surface ruins. A comprehensive study and comparison of the ceramic complexes at X-Kukican have been recovered from the Gruta de Chac near Sayil (Brainerd, 1958:Figs. 63).

The late Early period and Pure Florescent were best represented by the slatewares. Medium slateware forms were numerous, and included several variations of the large restricted-orifice jar, the wide-mouth short jar, and the “chultun” jar. Other slateware forms were bolster-rim basins (Fig. 1.29), beveled rim ring stand bowls (Fig. 1.48A, B), basal angle break tripod plates (Fig. 1.48C, F, G), and hemispherical bowls, some with button legs (Fig. 1.48D). One unusual form, which resembled medium slate (Fig. 1.48E) had what appeared to be a cob roughened, rounded base. Thin slateware forms were represented by the hemispherical bowl and the cylinder. Several hemispherical bowl sherds were noted which had traces of a polychrome painted stucco coating. Medium red basal angle break tripod plates (Fig. 1.48H) and hemispherical bowls were also common slateware variants.

A wide variety of Tepeu or Tepeu-like polychrome wares were found at several locations, and a few sherds of Peten glosswares (Fig. 1.49A) were also noted. A possible Tepeu-like cylindrical form was noted in several locations within the cave (Fig. 1.49E), and one such cylinder vase was covered with polychrome painted panels (Figs. 1.36, 1.46A).

Unslipped utility vessels appeared in several forms (Fig. 1.49C, D), with the large jar being the more common form.
Figure 1.46. Miscellaneous ceramic types. See text for detailed descriptions.
Figure 1.47. Polychrome wares from the cave complex. See text for detailed descriptions.
Figure 1.48. Slatewares and related forms. See text for detailed descriptions.
Figure 1.49. Miscellaneous ceramic types. See text for detailed descriptions.
(Figs. 1.29, 1.30, and 1.31). Most of these jars were deeply striated, similar to those noted by Brainerd (1958:Figs. 37D, 38A), and at least one example had been coated with a deep blue pigment. Additional analysis is necessary on the utility jar forms, for several non-striated or slipped and striated wares were noted which are related to the Formative unslipped and slipped over striated wares.

**Decadent Period**

A fragment of what was perhaps a full-figure Mayapan censer (Fig. 1.46C) was recovered from Room 8 of the cave. This was the only indication of any Decadent ceramic remains noted within the Archaeological Zone.

**DETAILED DESCRIPTION OF CERAMIC ILLUSTRATIONS**

**Fig. 1.45A**

Fig. 1.45A illustrates a small ceramic human head on a ring stand base with a small orifice behind the headpiece. The piece was hand-molded, with certain details defined by the addition of clay strips. A headband passed over the forehead and was knotted in the center, with an extension of this headpiece or hair passing under the band and ending in the rear of the head. Ears or ear ornaments were once present on either side of the head below the headband. The paste was red-black and of medium texture, with a crazed glossy slip. The piece was crushed by the vault collapse of Structure 7, and was found in fragments on the floor of that structure in Test Unit 7.

**Fig. 1.45D**

Fig. 1.45D illustrates a high-gloss orange slipped hand-molded small animal effigy vessel. A small perforation penetrated the tail section of the specimen. This vessel fragment was recovered from Room 1 of the cave.

**Fig. 1.46A**

Fig. 1.46A (see Fig. 1.36 for a larger view) illustrates a cylindrical vessel similar in shape to that shown in Fig. 1.49E. A thin white stucco coating covered the exterior walls of the vessel, and painted upon this coat was a detailed polychrome panel. The vessel had been shattered in Room 36 of the cave, and many of the sherds had subsequently lost their stucco and painted coating; however, it was possible to reconstruct the panel in most details. The basic color scheme was a red background with figures and bands in black, white, and blue-green. Both scenes of the panel were identical in most particulars, representing a figure seated upon a low platform facing a lower, kneeling figure. Similar geometric bands separated both panels, and a geometric band encircled the vessel above the panels. The artistic execution varied, and it was evident that although a single artist did the work, that artist did not completely plan the material, for one scene and geometric band were compressed as if the artist had run out of available space.

The seated figure rested on a low pink cushion in a classic pose with a jaguar skin covered cushion or item to his immediate right. Some slight variation was present in the two seated figures, yet each seemed to represent a male dressed in a short skirt and belt, with a large collar covering the chest region. Traces of an elaborate headdress were present, with some of its blue feathers trailing below the figure. The figure had several wristlets, armlets, and garters, all of which seemed to represent in part beads or bead assemblages. Sandals appeared to have flat soles with toe areas divided into straps wrapped around the ankles. The collar was fringed in beads with additional decoration under the chin. A segmented tubular nose plug and a compound earplug with long tubular center were visible on the face, and one figure had lines around his eye. The right hand was extended and pointed to an elaborate headdress resting between the figures. One panel also had a footed pedestal with a ridged top next to the headdress, but this was absent in the constricted panel. The headdress had a white with black spotted base with blue feathers, and was similar in form to examples from Bonampak (Ruppert et al., 1955). A white speech or sound scroll issued from the seated figure, projected toward the headdress and kneeling figure.

The kneeling figure carried a black and white banner on a short staff. The figure was a male, dressed in a black and white uniform with short skirt and belt. Sandals similar to those upon the seated figure were depicted, and wristlets were evident on the left arm. The head had long straight hair, with a band or crown object above the forehead. Square objects probably represented earplugs, and a hairpin protruded from the top of the head. The face had numerous spots, which perhaps represented scarification, and a tubular nose plug was present. A glyphic panel of four glyphs was suspended above and in front of the figure in one scene. Glyphic panels could have once been located near the other figures, but the background was too eroded for positive proof. In the glyphic panel one was perhaps an Ahau glyph and another a variant of Thompson’s (1962) glyph 501 with an unidentified affix. The other two glyphs were unidentified, partly because of the poor condition of the stucco at that point.

The subject matter of the scene apparently represented a head chief (halach uinic) or lesser chief (batab) seated on a low cushion on a low platform. The red background may have represented additional architectural construction, perhaps the interior of a vaulted structure, for much of the plaster recovered from X-Kukican and other Maya sites was painted in a similar red color. A jaguar skin covered object resting next to the figure probably represented his rank or was a symbol of the authority vested in him at that moment. His attention was directed to the kneeling figure, and from the speech scroll and pointing hand it is evident
that he was addressing that person while also drawing attention to the elaborate headdress. The kneeling figure appeared quite subordinate in his kneeling position, with his left arm bent in front of his body perhaps in an attitude of respect. The figure and the headdress both rested at a lower level than the principal figure, and aid in the distinction of unequal status between the two. The uniform and banner or standard could have denoted a military organization, or, as the kneeling figure did not appear quite as Mayan in features as the principal figure, he could have represented an envoy from a non-Mayan group. The glyphic panel perhaps identified this figure, and is similar as such to glyphic panels in the murals at Bonampak (Ruppert et al., 1955:58-59). A tentative interpretation would seem to relate an event in which a high ranking Maya individual received someone of lower status and bestowed on that person a symbol of rank, which would include an elaborate headdress. There are, or should be, alternative interpretations to this knighting ceremony, and the most obvious would be that of a defrocking ceremony.

Fig. 1.46B
Fig. 1.46B illustrates a large rectangular basin with a pronounced flange. The surface had a high-gloss orange slip with the paste ash tempered. Rootlet marks were present on several individual sherds. The vessel was reconstructed from fragments found in Room 15 of the cave.

Fig. 1.46C
Fig. 1.46C illustrates a fragment of a Mayapan-type painted figure censer. The color scheme is: dashes for blue, solid for black, non-inked for white, and heavy stippled for unslipped. Limestone inclusions were present in the crumbly and rough texture of the gray paste of the vessel. The fragment was found in Room 8 of the cave.

Fig. 1.46D
Fig. 1.46D illustrates two fragments of a Formative dark red spouted jar. The spout was round in cross-section, and the walls had vertical grooves or ridges. There was a fragmentary bail-like projection on one large rim sherd. These vessel fragments were found in Room 8 of the cave.

Fig. 1.46E
Fig. 1.46E shows the rim profiles of several Formative monochrome flat-bottomed plates, which were found in Rooms 1 through 8 of the cave complex.

Fig. 1.47A
Fig. 1.47A illustrates a Tzakol high-gloss orange slipped jar, with a red and black painted design panel. The interior of the jar was unslipped and showed striated or tooling marks. The lip of the jar had a painted black line, whereas the three handles were plain. A series of mend holes were present along an old crack line on the back lower side of the vessel, indicating some use of the vessel even after it had been cracked. This vessel was reconstructed from fragments found in Room 8 of the cave.

Fig. 1.47B
Fig. 59B illustrates a flat-bottomed, vertical-sided bowl of a high-gloss orange ware. The decoration consisted of a black line around the rim and an insect motif repeated five times around the vessel. The insect was painted in black, red, and gray colors, with the five repetitions showing little variation.

Fig. 1.47C, D, and E
Fig. 1.47C-E illustrate Tzakol orange, red, and black painted polychrome basal angle break tripod plates. The floors of the plates depicted stylized bird motifs with little variation except in headpieces. The legs of the plates were pierced with a rounded object, which left a small clay disc inside the leg to act as a rattle pellet. All of these plates were found in fragmentary condition in Room 1 of the cave.

Fig. 1.48A
Fig. 1.48A illustrates a medium slate bevel rim ring stand bowl with faint traces of trickle on the exterior walls. The bowl was recovered from Level 4 in Test Unit 2.

Fig. 1.48B
Fig. 1.48B illustrates a medium slate bevel rim ring stand bowl with trickle present on the exterior walls. This specimen was found in Room 25 of the cave.

Fig. 1.48C
Fig. 1.48C illustrates a fragmentary medium slate basal angle break tripod plate with short hollow rounded legs. A pronounced trickle design was visible on the floor and rim of the plate. The plate was found in Room 1 of the cave.

Fig. 1.48D
Fig. 1.48D illustrates a medium slate hemispherical bowl with three solid button legs. The bowl was found in Room 24 of the cave.

Fig. 1.48E
Fig. 1.48E illustrates an unidentified ceramic type and form which resembled the slatewares in feel. The slip was dark red to black, and the paste was red and tempered with limestone. The base was unslipped to slightly slipped, and was decorated with a prefired series of small punctations. These punctations could have been made by fingernails or some item such as a stick or a corn cob fragment. The fragments of the vessel were recovered from Room 8 of the cave.

Fig. 1.48F
Fig. 1.48F illustrates a medium slate basal angle break tripod plate with hollow legs. The surface of each leg had a humanoid face. No rattle items were present within the legs. This plate was found in Room 25 of the cave.
Fig. 1.48G

Fig. 1.48G illustrates a medium slate basal angle break tripod plate. The legs were rounded and hollow and each contained a single clay pellet, which was punched from the wall of the leg by a rounded object. Slight traces of a post-fired red pigment were visible on the floor of the plate. The plate was found over the skull of Burial 1 in Structure 7.

Fig. 1.48H

Fig. 1.48H illustrates a medium red basal angle break tripod plate. The legs were hollow and perforated by small cuts; however, no rattles were present. The decoration of the legs was impressed, probably from a mold, representing a cross and dots or lines. The specimen was found in Room 8 of the cave.

Fig. 1.49A

Fig. 1.49A illustrates a Tepeu glossware cylindrical vase. In the decoration process, the vessel was first painted with a cream slip and was then overlaid with dark brown vertical streaks. This procedure has produced a pleasing wood-like effect on the exterior wall. A dark brown-red thick line was next painted on the rim, along with three elongated double loops, which extended from the rim to about midway down the vessel wall. The major design element was then formed by a gouged-and-incised process, and consisted of a repetitious pseudo-glyphic band along the rim, and a spiral contracting geometric and face band. The execution was masterfully done and indicates a high artistic control. The vessel was recovered in a fragmentary state in Room 4 near the entrance to Room 3 of the cave.

Fig. 1.49B

Fig. 1.49B illustrates a typologically unidentified flat-bottomed bowl. The paste was of a gray color with a high coarse limestone content. The bowl was slipped in a mottled yellow and orange, with multiple-brushed striped black lines extending from the lip. A painted red line also encircled the interior of the lip. This bowl was found in Room 8 of the cave.

Fig. 1.49C

Fig. 1.49C illustrates a small, unslipped striated utility jar. The striations were light, only slightly brushed, and the majority were directed down toward the base. The exterior of the neck was not striated. The vessel paste was a dark reddish-brown, with tempering agents being of opaque gray to white limestone and white to clear calcite particles. The vessel was recovered from Cache No. 1 in Bluff Shelter No. 3.

Fig. 1.49D

Fig. 1.49D illustrates a small, unslipped slightly striated bowl. The striations ran parallel to the rim and were more frequent near the base. The paste was a dark brown-to-black, and contained opaque gray to white limestone and clear calcite particles as tempering. This vessel was recovered from Cache No. 1 in Bluff Shelter No. 3.

Fig. 1.49E

Fig. 1.49E illustrates an unidentified reddish-brown slipped cylinder vase. Several of these were noted within the cave complex, including one which was decorated with a painted polychrome panel (Figs. 1.36, 1.46A). This example is from Room 21 of the cave.

Fig. 1.49F

Fig. 1.49F illustrates an unslipped reddish-brown limestone tempered pedestal. The top indicated some wear, and the underside cavity appeared to have been slightly burned and smoked. This specimen was found on the entrance slope in Room 1 of the cave.

Fig. 1.49G

Fig. 1.49G illustrates a typologically unidentified slateware bolster-rim basin with two opposing strap handles. A crude painted red figure of a human was executed on one side, and red painted lines encircled the interior and exterior of the vessel. The vessel was recovered from a crevice in Room 24 of the cave.
## APPENDIX: CERAMIC DISTRIBUTIONS

Table 1.1
LOT SAMPLE PX-201
Location: Test Unit 1, Structure 1
Features: Fragmentary floor separates Levels 3 and 4

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Table 1.2
LOT SAMPLE PX-202
Location: Test Unit 2, off acropolis, near Structure 11
Features: Intact Medium Slate Bevel Rim Bowl from Level 4.

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Table 1.1. Sherds from Lot Sample PX-201.

Table 1.2. Sherds from Lot Sample PX-202.
Table 1.3  
LOT SAMPLE PX-203  
Location: Test Unit 3, acropolis near Structure 8  
Features: Intact floor separates Levels 3 and 4.

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| MEDIUM RED |   |   |   |   |   |   |   |   |   |    |    |    |
| Bevel Rim Bowl |   |   | 1 |   |   |   |   |   |   |    |    | 2  |

| UNSLIPPED  |   |   |   |   |   |   |   |   |   |    |    |    |
| Striated Utility Jar | 5 | 13 | 2 | 1 |   |   |   |   | 1 | 1  | 5  |   |
| Non-Striated Utility Jar |   | 6 | 5 | 8 |   |   |   |   | 6 | 11 | 6  | 30 |

| TZAKOL  |   |   |   |   |   |   |   |   |   |    |    |    |
| Orange Slipped Jar |   |   | 1 |   |   |   |   |   |   |    |    | 3  |
| Miscellaneous |   |   | 1 | 1 |   |   |   |   |   |    |    | 2  |

| FORMATIVE  |   |   |   |   |   |   |   |   |   |    |    |    |
| Plate |   |   |   |   |   |   |   |   |   |    |    | 1  |

| UNIDENTIFIED  |   |   |   |   |   |   |   |   |   |    |    |    |
| Striated Utility Jar |   |   |   |   |   |   |   |   |   |    |    | 1  |
| Non-Striated Utility Jar |   |   |   |   |   |   |   |   |   |    |    | 3  |

Table 1.3. Sherds from Lot Sample PX-203.

Table 1.4  
LOT SAMPLE PX-204  
Location: Test Unit 4, acropolis near Structure 8  
Features: Intact floor separates Levels 3 and 4.

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| UNSLIPPED |   |   |   |   |   |   |
| Striated Utility Jar | 13 | 15 | 5 | 13 |   | 1 |
| Non-Striated Utility Jar | 3 | 9 | 5 | 11 |   | 3 |

| UNIDENTIFIED |   |   |   |   |   |   |
|               | 1 | 1 |   |   |   |   |

Table 1.4. Sherds from Lot Sample PX-204.
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Table 1.5. Sherds from Lot Sample PX-205.
Table 1.6
LOT SAMPLE PX-206
Location: Test Unit 6, Structure 5
Features: Intact floors separate Levels 24 and 25, Levels 26 and 27
Levels 27 and 28, and Levels 28 and 29.

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Table 1.6. Sherds from Lot Sample PX-206.
Table 1.7
LOT SAMPLE PX-207
Location: Test Unit 7, Structure 7
Features: Burial 1 and intact floors separate Levels 18 and 19 and Levels 21 and 22.

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Table 1.7. Sherds from Lot Sample PX-207.
Table 1.8
LOT SAMPLE PX-208
Location: Test Unit 8, Structure 14
Features: Intact floors separate Levels 4 and 5 and Levels 6 and 7.

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Table 1.8. Sherds from Lot Sample PX-208.

Table 1.9
LOT SAMPLE PX-209
Location: Test Unit 9, Structure 3, Room 2
Features: Intact floor separates Levels 3 and 4.

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Table 1.9. Sherds from Lot Sample PX-209.

Table 1.10
LOT SAMPLE PX-210
Location: Test Unit 10, Structure 16
Features: Fragmentary floor separates Levels 4 and 5.

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Table 1.10. Sherds from Lot Sample PX-210.
Table 1.11
LOT SAMPLE PX-211
Location: Test Unit 11, Bluff Shelter No. 1

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Table 1.14. Sherds from Lot Sample PX-214.
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Location: Test Unit 14, Bluff Shelter No. 2

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Table 1.16. Sherds from Lot Sample PX-215.

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Location: Surface of Bluff Shelter No. 2

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Table 1.16. Sherds from Lot Sample PX-216
Table 1.17
LOT SAMPLE PX-217
Location: Test Unit 15, Bluff Shelter No. 3
Features: Cache 1 from Level 6

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Table 1.18
LOT SAMPLES PX-219 AND PX-220
Locations: PX-219, Surface of Acropolis; PX-220, Surface around Entrance to X-Kukican Cave Complex

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Table 1.19
LOT SAMPLE PX-221
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Table 1.17. Sherds from Lot Sample PX-217.

Table 1.18. Sherds from Lot Samples PX-219 and PX-220.

Table 1.19. Sherds from Lot Sample PX-221.
Part 2.

Second Field Season At The Archaeological Zone Of X-Kukican, Yucatán, Mexico

by Edward B. Kurjack, Jerry J. Nielsen, and Boyce N. Driskell

(August, 1968)

This report is a preliminary statement of the results of the 1967-68 season of field research conducted by the Instituto Yucateco de Antropología e Historia and the University of Alabama in the Archaeological Zone of X-Kukican near Otkutzcab, Yucatán. The investigations were part of a joint effort of the Department of Anthropology of the University of Alabama and the Instituto Yucateco de Antropología e Historia designed to facilitate social science research in the southern part of Mexico. The principal responsibility for the project described in this manuscript was assumed by David L. DeJarnette, Associate Professor in the Department of Anthropology and Curator of the Archaeological Museum at the University of Alabama. Dr. Alfredo Barrera Vásquez, the co-director of the project and Director of the Instituto Yucateco de Antropología e Historia, gave invaluable aid in the completion of this report. This document (Part 2) is the annual field report of the 1967-68 season; it was submitted as required by the University of Alabama’s contract with the Instituto Nacional de Antropología e Historia.

PURPOSE OF THE 1967-68 INVESTIGATIONS

Work was continued by the University of Alabama in the Archaeological Zone of X-Kukican from October 5, 1967 through January 14, 1968. The major goal of this research was to conduct a preliminary survey of the area extending outward from the acropolis complex and cave which were the focus of the previous season’s work (Part 1). Highest priority was placed on the construction of a large-scale topographic map covering the surrounding area and locating all of the architecture and other features of archaeological interest.

SUMMARY OF RESEARCH CONDUCTED DURING THE 1967-68 SEASON

The body of this report (Part 2) is organized into sections reflecting the investigators’ areas of concern. Perhaps the most important aspect was the preliminary map of the Archaeological Zone of X-Kukican. The map and the field procedures used in its construction are discussed in the following section of the report. The next part describes the pre-Columbian architecture encountered during the mapping process, which consisted of 61 individual structures, most of which were component parts of six architectural complexes. Stelae, monuments, and other features of interest found by the surveyors are discussed in the section following the description of the architecture. The surveyors encountered three caves and a bluff shelter in their search for water sources within the Archaeological Zone. A brief account of the exploration of these caves forms the final descriptive section of the report. The report closes with recommendations for future research.

MAPPING PROCEDURES

The survey of X-Kukican for this season resulted in a chart of an area approximately nine tenths of a square kilometer showing the location of 91 pre-Columbian...
structures, the cave of X-Kukican, and 3 bluff shelters. An additional map was prepared which indicates where fieldworkers encountered three additional caves and a bluff shelter in an area southeast of the main chart during the second season. The map of the Archaeological Zone, begun by David L. DeJarnette during the first field season, centered around the main acropolis (Complex A) and the cave of X-Kukican. Mapping was continued during the 1967-68 season by Boyce N. Driskell and Jerry J. Nielsen.

Surveying in northern Yucatán, especially in the densely foliaged hill region, involves problems and hardships seldom appreciated by those who have never undertaken similar projects in the Maya area. These problems are always reflected in the finished project of such research; no chart should be evaluated without keeping them in mind. Due to the vegetation, visibility is seriously limited except on the trails and random milpas. Thus even large ruins may be overlooked and small, well-preserved house sites can be missed by surveyors who have walked over them. It is not surprising that some fieldworkers, stumbling in the heavy bush, have underestimated the size of ancient Maya communities. The preliminary map of X-Kukican that accompanies this report shows the location of only the largest structures at the site; further systematic survey will be necessary before the small ruins are recorded.

The map that was drafted by DeJarnette during the first field season (Cottier, 1967:17) covered an area of about six hectares. The vertical datum was arbitrary; the elevation of the mouth of X-Kukican cave was assigned a value of 300 feet (91.4 m). This point was marked with an “X” chiseled into the rock above the cave’s entrance. It served as the datum point for the second season’s mapping as well.

A sacbe (Sacbe 1) leading from the main acropolis (Complex A) into the adjacent valley was noted during the first season of fieldwork at the site. As the first step of the 1967-68 efforts, this sacbe was completely cleared (Fig. 2.1). Some 550 m from the main acropolis, the sacbe entered a large milpa. Where all traces of its construction had been destroyed, dashed lines on the base map (Frontispiece) indicate the probable course of the sacbe to Complex B. A surveying line along this sacbe from Complex A to Complex B served as the base line for the 1967-68 mapping operations. A series of grid lines and rays were sighted and cut through the bush from stations along the base line, and a network of secondary stations

Figure 2.1. View of Sacbe 1, south of Complex B. Note the retaining wall on the left side of the photograph. The sacbe is 6.3 m wide.
was established in the surrounding terrain. Trails, open areas such as milpas, and high points in the area were utilized for locating the most advantageous positions for the stations. The topography and archaeological features were recorded in the field with an alidade and a plane table.

Archaeological remains were cleared and their surfaces searched for evidence of walls, stelae and other carved monuments, chultunes, metates (Fig. 2.2), building stones dressed for special purposes such as lintels, jambs, capstones for Early period vaults, or use in medial or superior molding of formal architecture, and any other features that would aid in interpretation. A form sheet was filled out by the surveyors in the field on each of the structures examined where all of the significant surface features were recorded. Any pottery encountered on the surface during this process was given a field identification and left at the site unless further study was warranted.

ARCHITECTURE

Sixty-one individual examples of pre-Columbian architecture and three sacbeob or raised causeways were located, cleared, and investigated during the 1967-68 field season. Most of the structures were built on or associated with one of seven large low terraces or raised platforms. The seven groups of architecture formed in this manner are termed plaza complexes in this report. The main acropolis above the cave of X-Kukican is labeled Complex A on the map; the seven plaza complexes encountered during the 1967-68 field season are labeled Complex B through Complex H. The following paragraphs describe the sacbeob, the structures found in the plaza complexes, and the structures found outside the plaza complexes.

SACBEOB

Sacbe 1
Sacbe 1 was a raised causeway that once connected the main acropolis, Complex A, with the nearby ruins to the north called Xtancia-Kaa (now Complex B of the Archaeological Zone). Though few traces remained of the northern third of the causeway, it is believed that Sacbe 1 terminated at the platform-terrace that formed the substructure for the southern part of Complex B. This would mean that the sacbe was about 750 m long when built. The sacbe was 6.3 m wide. Where parts of the retaining walls remained intact, these sides of the sacbe consisted of a single course of masonry seldom more than 30 cm high. The small, thick, limestone slabs used in this masonry were only slightly dressed, and were utilized in the retaining walls by placing them on their edges or sides. The fill used in the construction of Sacbe 1 was composed of small pieces of crushed limestone mixed with a large percentage of earth.

Sacbe 2
Sacbe 2 apparently connected Complex C with Complex D. Because both ends of this causeway were buried by debris from Structures 47 and 44, the exact length could not be measured, but the sacbe was probably 160 m long. Only a few segments of the retaining walls remained intact along the length of this sacbe; therefore, measuring the exact width was also difficult. The sacbe was about 4.5 m wide and only some 15 cm high. The retaining walls were constructed of a single course of small, slightly dressed limestone blocks. The core of the causeway was a fill consisting of limestone, gravel and dirt.

Structure 46 was situated in the center of Sacbe 2, about 23 m from its juncture with Structure 47. A square platform measuring 3.1 by 3.1 m on its sides and about 15 cm high, Structure 46 may have been the foundation for a superstructure of perishable materials. No stelae fragments were found in the area, so probably it was not a stela platform.

Sacbe 3
Sacbe 3 was in an even poorer state of preservation than the first two. It was also about 4.5 m wide and a maximum of 15 cm high. This causeway seemed to extend from the northwest corner of Complex D near Structure 50 to the area of Structure 82 near Complex C; thus, the sacbe was at least 116 m long. The retaining walls and other construction features were similar to those of the other two causeways.

Figure 2.2. Row of heavy-grooved metates, typical of approximately 77 similar artifacts thus far found in the Archaeological Zone. Here the metates are being used as water troughs for livestock, near the west side of Structure 73, Complex C.
STRUCTURES OF COMPLEX B

Complex B (Frontispiece) consisted of thirteen structures arranged around what may have been a large, low terrace at the north end of Sacbe 1. The individual buildings included Structures 29 through 39 plus Structures 86 and 87; thus, the complex contains two vaulted Early period style buildings, one Pure Florescent vaulted building, three single-room unvaulted buildings, and seven platforms. Each of these structures is described below.

Structures 29-31

Structures 29-31 were built on or adjacent to the large platform on the south side of Complex B. The main part of this platform was the substructure for Structures 30 and 31. The rubble that formed the substructure was about a meter high. No parts of the retaining walls were visible on the surface.

Structure 29

Structure 29 was a low platform, about 75 cm high, located on the west side of the main platform on the south side of Complex B, described in the paragraph above. No remnants of the retaining walls were visible on the surface at the sides of Structure 29, nor was there any evidence of superstructure masonry. A single cylindrical monolithic column was found in the rubble on the surface of the structure. Structure 29 measured 9.2 by 15.2 m.

Structure 30

Structure 30 was a single-room, rectangular, unvaulted structure situated on the surface of the platform on the south side of Complex B. The exterior measurements of this structure were 4.6 m long by 3.0 m wide. The existing masonry consisted of a single course of crudely dressed blocks; one block on either side of the wall was approximately 50 cm thick. This basal course of masonry averaged about 20 cm high.

Structure 31

Structure 31, located on the same substructure as Structure 30, was also a single-room, rectangular unvaulted building measuring approximately 3 m by 3 m. The remaining masonry was a single course of a double row of blocks much like those in Structure 30. This basal course was about 40 cm high and 50 cm wide. Two eroded medium slateware sherds were found on the surface of Structure 31. A heavy grooved metate was found near the southeast corner of the structure.

Structure 32

Structure 32 was a low platform, 75 cm high, located adjacent to the south side of the large platform forming the southern part of Complex B. No parts of the retaining walls remained intact, but the structure must have measured about 7.6 m in length and 3.1 m in width.

Structure 33

Structure 33 was a platform measuring 6.1 m long, 5.5 m wide, and 1.8 m high. No parts of the retaining walls were intact, nor was there any evidence of superstructure masonry. Two heavy grooved metates were found in the rubble near the southeast corner of the surface of this platform.

Structure 34

Structure 34 appeared to have been a single-room, rectangular, unvaulted building constructed on a platform that averaged 50 cm high. The substructure measured 9.1 m long and 6.1 m wide, but no retaining walls remained intact. Superstructure masonry consisted of a double row of relatively well-dressed blocks that formed the basal course of masonry. The blocks may have been crude veneer blocks of the kind used on Pure Florescent formal architecture. No jamb stones were present, so the exact location of the doors is conjectural. Two unslipped plain sherds were found on the surface of the structure.

Structure 35

Structure 35 was a Pure Florescent vaulted structure, the remains of which were situated adjacent to the east side of Structure 36, the high pyramidal mound that dominated Complex B. Only small segments of the walls of Structure 35 were visible. The structure seemed to have had two rooms. The overall length of the structure was approximately 14 m, while the width was about 3 m. The masonry below the spring course of the vault was typical of the Pure Florescent style. The wall was about 50 cm wide. The stones used in the vault were thin slabs with a neatly dressed bevel at their exterior face; thus, the vault showed features transitional between Early period corbeling and the Pure Florescent method of constructing vaults with the characteristic boot-shaped stones. No evidence of a separate substructure was noted for this building; perhaps the basal molding of this structure rested on the surface of the large terrace that is assumed to have covered the entire area of Complex B. Stone lintels and what were presumed to be jamb stones were found in the rubble around the structure, and a heavy grooved metate was also present. No carved facade stones were located. Two eroded slateware sherds were found on the surface of the structure.

Structure 36

Structure 36 consisted of rubble that was the remains of what seems to have been a small Early period vaulted building elevated on a pyramidal structure approximately 8.5 m high. No walls were visible on the surface, but slabs from a corbeled vault and monolithic stone lintels were present in the debris on the sides of the structure. The substructure measured about 29.0 m long and 21.3 m wide at its base. This building, with its pyramidal substructure, was the largest construction in Complex B. Table 2.1 lists
the ceramic material found on the surface of the structure.

Structure 37
Structure 37 was probably a small Early period vaulted structure situated on a platform that was 2 m high. Little remained of the superstructure masonry. However, the debris suggested a building that could have had three rooms. The total length of the vaulted building was probably close to 14 m; the width of the structure was about 3 m. The dimensions of the substructure were 29 m by 6 m. The platform of Structure 37 was probably added to the side of Structure 36.

Structure 38
Structure 38 was a platform that was probably about 4.0 m high, 17.0 m long, and 15.5 m wide. A small portion of the retaining walls still stood on the southeast corner of the structure. No evidence of steps or superstructure masonry was present on the surface. The rubble indicated that this platform was less than 50 cm high, but no retaining walls or evidence of superstructure masonry were present on the surface. The platform measured approximately 9 m by 3 m. The five sherds listed in Table 2.1 were found on the surface of the platform.

Structure 39
Structure 39 was a low platform adjacent to the west side of Structure 38. The rubble indicated that this platform was less than 50 cm high, but no retaining walls or evidence of superstructure masonry was present on the surface. The platform measured approximately 9 m by 3 m. The five sherds listed in Table 2.1 were found on the surface of the platform.

Structure 87
Structure 87 consisted of limestone rubble suggesting the presence of a small platform about one meter high. Its maximum linear dimensions were 7.5 m by 3.5 m. The rubble was spread over an area that was oval in shape. This may have been the original shape of the platform’s ground plan. No retaining walls were visible on the surface.

STRUCTURES OF COMPLEX C
Complex C consisted of seven structures clustered on what must have been a large plaza at the west end of Sacbe 2. The buildings included in the complex are Structures 42 through 44 and Structures 73 through 76. Complex C possessed one Pure Florescent vaulted building, one multi-room unvaulted building, two single-room unvaulted buildings, and three platforms with no evidence of superstructure masonry.

Structure 42
Structure 42 was a platform that measured 75.0 cm high, 10.5 m long, and 4.6 m wide. The retaining wall probably consisted of two courses of masonry formed from relatively well-dressed rectangular limestone slabs. No evidence of superstructure construction was present on the surface of the platform.

Structure 43
Structure 43 was a platform that measured about 29 m long, 7.5 m wide, and 75 cm high. No part of the retaining walls remained intact on the surface, and no evidence of superstructure masonry was found. Sherds found on the platform are listed in Table 2.1.

Structure 44
All that remained of Structure 44 was a pile of rubble.
that measured a maximum of 33.5 m long, 27.5 m wide, and 6.5 m high (Fig. 2.3). The rubble contained Pure Florescent style vault stones, carved facade stones, large jamb stones, and stone lintels. Structure 44, therefore, was probably on a platform that was 2 m to 4 m high. The figure drawn for Structure 44 on the site plan reflects this reconstruction. Part of a grooved metate was found in the rubble, as were the sherds listed in Table 2.1.

Structure 73

Structure 73 was a long, rectangular, five-room unvaulted building constructed on a low platform. The retaining walls of the substructure consisted of a single course of crudely dressed slabs. The substructure measured 33 m long, 6 m wide, and about 50 cm high. The ground plan of the superstructure was evidenced by the basal course of masonry that remained intact on the surface of the platform. This course consisted of a double row of crudely dressed blocks. A heavy grooved metate was found near the northeast corner of the structure.

Structure 74

Structure 74 was a low, oval platform. No parts of the retaining wall remained intact. The structure measured approximately 6.0 m long, 5.5 m wide, and about 50.0 cm high.

Structures 75 and 76

Both Structures 75 and 76 were almost square, single-room unvaulted buildings erected on the same low platform. No retaining wall was present around the substructure. The platform probably measured about 15 m by 6 m in length and width, and 50 cm in height. The outlines of the superstructure were evidenced by a single course of masonry consisting of a double row of crudely dressed blocks. The location of the doorways was probably on the north side of the buildings. A single metate fragment was found near the northeast corner of Structure 76.

STRUCTURES OF COMPLEX D

Complex D, a group of 28 structures composing three subcomplexes or clusters of buildings arranged around a large central edifice, is the largest concentration of Pure Florescent architecture yet located in the X-Kukican area. It was linked to Complex C, another smaller Pure Florescent group to the west, by Sacbe 2 which extended from Structure 44 to Structure 47, the central building of Complex D. An extensive terrace measuring about 119 m north-south by 92 m east-west formed the substructure of Complex D. Nowhere along the terrace edge were the retaining walls preserved, but from the low height of the terrace (61 cm), they were probably a single course high. For discussion, this complex has been divided into four topics: Structure 47 (the central building) and Subcomplexes D-1, D-2, and D-3. The three subcomplexes were separately platformed on top of this terrace, and viewed as a whole, they presented an impressive gathering of architecture.

Four chultunes penetrated the surface of the terrace and two others lay a short distance from its edges. Five of these chultunes were scattered around Subcomplex D-3; a sixth was found to the west of Subcomplex D-1. Only one of the six chultunes, located to the southwest of Structure 65, was still intact. This one was superficially investigated. A small ceramic sample was obtained from its interior surface and a cross-section drawing was made of it. Stone slabs of the type commonly used for covers were often observed near the chultunes.

Central Structure 47

Structure 47, one of the most impressive single structures yet recorded in the Archaeological Zone, was located at the eastern end of Sacbe 2. This building is a superb example of Puuc style, Pure Florescent architecture. Debris resulting from collapsed sections of the structure was strewn with decorative architectural elements such as small columns, spindles, latticework elements, boot-shaped vault stones, and what appeared to be “Chac” mask motif elements.

The structure measured 27.4 m north-south and 15.2 m east-west. It appeared to contain at least four vaults butted together to form a T-shape. Presently the highest area of the structure is at its center, where a section of the vault remains and rises 7.62 m above the surrounding terrain. Veneer masonry was used below the spring of the vault,
numerous well-made boot-shaped vault stones occurred among the vault debris. Basal and superior moldings of engaged columns adorned the facades. No doorways were exposed, but jamb stones and lintels were noticed in the rubble, suggesting entrances at several places.

Test Unit 20 was excavated at the southeast corner of the east room. Three adjacent pits were dug, each one m square. One square was located northeast of the structure’s corner. Another was northwest of the corner, and the third square connected Squares 1 and 2. Excavation was started in 10 cm levels, and when a plaster floor 2 cm thick was encountered at a maximum depth of 1.5 m below the overlying rubble, the material was divided by structural levels.

The excavation uncovered a beautifully preserved basal cornice, the base of which was approximately 50 cm above the surrounding terrain (Fig. 2.4). Apparently, the rubble layer lying between the stucco floor and bedrock represented a platform designed only to level the foundation of Structure 47. Ceramics recovered above and below the plaster floor showed no contrast (Table 2.2). The most numerous types were medium slatewares and unslipped striated utility wares of the late Early to Pure Florescent periods. A single sherd of Puuc (Z-type) Fine Orange was recovered from below the stucco floor in Square 1, and a partial slateware ring stand vessel with a direct rim was found beneath the stucco floor in Square 3.

STRUCTURES OF SUBCOMPLEX D-1

This northernmost section of Complex D was composed of 13 structures—two platforms, seven unvaulted buildings, and four vaulted buildings—arranged on a single large substructure. The substructure, measuring 42.0 m by 33.0 m with a height of 1.1 m, supported Structures 48-60. No walls were present along the edges of the substructure, but

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Table 2.2. Sherds from Test Unit 20, Structure 47.

a double or triple course of roughly dressed rectangular blocks probably retained the rubble core. Sacbe 3 ended at the northwest corner of this platform. A chultun was located about 4.6 m west of Subcomplex D-1. This chultun still had traces of its stucco lining. One side of the chultun had slumped in and filled most of the original cavity.

Structure 48

Structure 48 was a rectangular, unvaulted building of three rooms located in close proximity to the southern edge of the main platform of Subcomplex D-1. The structure measured 4.6 m by 16.7 m on the exterior, and had a maximum wall height of 46 cm above the platform surface. Entrances, suggested by disturbances along the south wall, apparently consisted of one doorway per room. Walls were seen as a single course of stones averaging 40 cm in thickness. Masonry was of faced rectangular veneer blocks. Coarse lime mortar was utilized as a bonding agent. A rectangular, heavy grooved metate was observed and recorded lying loose in the building’s rubble.

Found immediately to the south of this structure was evidence of a single step leading up to the main platform at the edge of Structure 48. The step measured 18.8 m long with a tread of 8.0 cm and an average rise of approximately 5.0 cm.

Figure 2.4. Basal molding exposed by Test Unit 20 at the southeast corner of Structure 47, Complex D. The edges of the plaster floor are visible a few cm above the bottom of the molding.
Structure 49

Structure 49 appeared as a Pure Florescent vaulted structure of three rooms. Round column jamb stones remained intact on the north wall of the central room. The structure had exterior measurements of 15.3 m by 3.3 m, and a maximum height of 1.8 m. Wall construction below the spring course of the vault was similar to that of Structure 48, utilizing well dressed, rectangular to square veneer stones with a distinct tenon projection in the rear. Wall thickness averaged 40 cm, and fragments of coarse lime mortar were observed between the veneer faces. Vault debris consisted of well-made, boot-shaped vault stones typical of Pure Florescent vaulted architecture. The two round column jamb stones were 1.38 m apart. Other non-columnar jamb stones and lintels were observed out of context in the debris resulting from the building’s collapse.

A rectangular, heavy grooved metate was observed in the rubble at the northwest corner of the structure. Ceramics collected from the structure’s surface are presented in Table 2.3.

Structure 50

Structure 50 was seen as a small, unvaulted three-room building located at the presumed junction of Sacbe 3 and the main platform of Subcomplex D-1. This narrow structure had maximum horizontal measurements of 6.1 by 1.5 m, and a maximum height of 15 cm. Entrances, one per room, were located only on the west wall. Intact jamb stones 61 cm apart were observed in place in the south room, while the entrance area to the north room had been disturbed. Walls were of crude veneer masonry, with an average thickness of 50 cm.

Structure 51

This Pure Florescent vaulted structure of three rooms was located on the northwest corner of the substructure of Subcomplex D-1. Structure 51 measured 12.5 m long by 3.1 m wide, and a maximum of 1.6 m high. The walls below the spring of the vault were composed of neatly dressed, rectangular veneer stones set in a coarse mortar core, averaging 40 cm thick. Vault debris included boot-shaped vault stones and carved limestone facade elements. Single jamb stones standing in situ along the southern wall at the end rooms showed the location of two doorways.

Structure 52

Structure 52 was a rectangular Pure Florescent vaulted building 17.0 m long and 3.1 m wide, with a maximum height of 1.5 m above the surrounding terrain. Wall thickness was 55 cm. Below the spring course of the vault, wall construction was of finely dressed veneer stones set in a lime-rubble mortar. Boot-shaped vault stones were found among the debris of the collapsed vault. A partial entrance evident in the western wall of the central room consisted of two rounded jamb stones set 0.37 m apart. Other jamb stones and lintels were found in the rubble of the west side of the two end rooms. Structure 60, a

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<th>Structure 56</th>
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**TOTALS**  54  11  9  4  5  7  16

Table 2.3. Sherds from the surface of structures and chultun, Complex D.
small, rectangular unvaulted room with no recognizable entrances, was a secondary construction added to the northeast corner of Structure 52. Two medium slateware sherds were found on the structure’s surface.

**Structure 53**
Structure 53 was a small, 4.6 m by 3.1 m, unvaulted single-room building. The walls averaged 50 cm thick and were a single course high. A disturbed area in the south wall is presumed to have been an entrance. Masonry consisted of a double row of slabs dressed on the exterior face and seated on their sides with a mortar core in between. A heavy grooved metate was noted in the structure’s rubble.

**Structure 54**
Structure 54 was a single-room, unvaulted building 4.6 m by 3.1 m in size. Wall thickness averaged 40 cm, and debris reached a maximum height of 30 cm. Wall construction resembled the masonry of Structure 53. A single entrance was probably located in the eastern wall.

**Structure 55**
Structure 55 was a three-room Pure Florescent vaulted building measuring 15.3 m long by 4.6 m wide. Wall thickness averaged 80 cm. Masonry below the spring course of the vault was constructed of finely dressed veneer stones, and vault debris included boot-shaped stones. Both sidewalls had totally collapsed. Jamb stones and one lintel were observed in the rubble on the west slope of the central room.

**Structure 56**
Structure 56 was a low, simple platform measuring 7.6 m long and 3.1 m wide. Constructed of rubble fill with a single-course retaining wall of unworked slabs, the structure reached a maximum height of 15 cm above the main platform of Complex D-I. A surface sample of ceramics was obtained from this structure (Table 2.3).

**Structure 57**
Structure 57 was a two-room, unvaulted building about 14.6 m long and 3.1 m wide. Walls averaged 61 cm thick and rose about 56 cm above the surrounding terrain. A single course of masonry consisted of a double row of roughly dressed slabs with a mortar core fill. Entrances apparently faced to the south, with one doorway visible in the western room. Approximate width between jamb stones was 80 cm. A secondary construction, Structure 59, was added adjacent to the western wall of Structure 57.

**Structure 58**
Structure 58 was apparently an unvaulted, single-room building with very little masonry remaining intact. It probably measured about 3.1 m square. The single course of masonry found in place averaged 56 cm thick and 15 cm high. It consisted of a double row of crudely dressed blocks. A break in the south wall suggested a doorway. The front of the building rested on a natural outcrop of limestone, while rubble fill supported the rear of the building.

**Structure 59**
Structure 59 was a low, narrow platform measuring 5.5 m long and 1.5 m wide. It was a later addition to Structure 57, utilizing that structure’s western end wall to complete its own construction. The single-course retaining walls of crudely dressed blocks averaged 33 cm thick and 37 cm high.

**Structure 60**
Structure 60 appeared to be a single-room, unvaulted structure. It measured 4.6 m long, 3.1 m wide, and had an approximate height of 66.0 cm. Its western end wall was absent. Instead, a section of Structure 52’s eastern sidewall was utilized. The basal course of the wall averaged 56 cm thick, and consisted of a double row of crudely tenoned, slightly dressed stones. No entrances were apparent, but a doorway probably existed in the north or south wall.

**STRUCTURES OF SUBCOMPLEX D-2**
This eastern extension of Complex D consisted of four seemingly unvaulted structures, Structures 61-64, arranged on a common platform. The platform measured about 42 m long by 23 m wide, and reached a maximum height of 1.1 m above the terrace of Complex D. All retaining walls were collapsed. During the clearing of this complex a small, well-made mano and the sherds listed in Table 2.3 were recovered.

**Structure 61**
Structure 61 was a six-room, unvaulted structure located along the eastern edge of the substructure of Subcomplex D-2. Lying to the north of Structure 62, Structure 61 measured about 23.0 m long by 4.6 m wide. All exterior and interior walls, with the exception of parts of the western sidewall, were preserved. They consisted of a single course of large, crudely dressed blocks set in double rows. Remaining construction consisted of block masonry, but tenoned veneer stones were present in the structure’s rubble. Average wall thickness was 54 cm, and maximum height was 51 cm above the substructure. Entrances were preserved along the western sidewall on the two northern rooms and the second room north of the south end of the structure. These consisted of upright jamb stones with an average door width of 83 cm. Five heavy grooved metates were found nearby, west of this structure.

**Structure 62**
Structure 62, a two-room unvaulted building, was located to the south of, and oriented along the same axis as Structure 61. Wall thickness averaged 54 cm and
the single course walls rose to a maximum height of 41 cm. Wall masonry was identical to that of Structure 61. Tenoned veneer stones were observed among the debris of this structure. Measuring about 7.6 m long by 3.1 m wide, the structure had an entrance preserved in the eastern wall of the south room. A disturbance in the northern wall of the north room suggested the presence of another entrance. Width between the upright slabs utilized for jamb stones in the south room approached 60 cm.

**Structure 63**
Structure 63 was recorded as an L-shaped wall fragment. Possibly this and another wall fragment, Structure 64, were at one time part of a single structure, resembling Structures 61 and 62. Measuring 3.1 m north-south and 1.5 m east-west, the wall reached a maximum height of 6 cm and a width of 64 cm. Masonry was similar to that of Structures 61 and 62, but lacked tenoned veneer stones.

**Structure 64**
Structure 64, located south of Structure 63, was a single wall fragment about 3.1 m long north-south. Measuring 54 cm thick, it appeared as a single course of wall stones flush with the surface of the substructure. Wall masonry was identical to that of Structures 61 and 62. Possibly the badly disturbed nature of this structure and of Structure 63 can be accounted for by the recent construction of a stone wall encircling a milpa 15 m away. The modern stone fence contains dressed and undressed stones removed from Complex D, specifically from the southern area of Subcomplex D-2.

**STRUCTURES OF SUBCOMPLEX D-3**
This southern part of Complex D consists of six structures arranged in a plaza design upon a platform rising some 3 m above the main terrace. Of these six structures, four (Structures 67, 68, 70, and 72) were Pure Florescent vaulted buildings and two (Structures 69 and 71) were single-room, unvaulted structures. To the south of this plaza group were two platforms located adjacent to and perpendicular to the rear edge of Subcomplex D-3. Though not on the D-3 substructure, these structures, due to their close proximity, have been included in this group.

The substructure of D-3 proper measured some 36.9 m by 33.8 m. Its retaining walls had been buried by the structure debris falling from above (Fig. 2.5). The surface of the substructure appeared to be made of small stones and dirt. Accumulations of rubble on the north and south slopes suggested the location of stairways at these points. The northern stairway apparently led to the central entrance of Structure 67. The stairway, though collapsed, had a probable width of 9 m. The southern stairway seems to have led to the rear of Structure 71, though no entrance was apparent on this side of the structure. The probable width of this stairway was 9.5 m. On the surface of the substructure, in the plaza formed by the structures, two stelae, one tapered stone column, and a carved jamb stone were found. Their positions were plotted (see the Frontispiece), and their descriptions are included in the upcoming section entitled Special Features. Sherds recovered from the surface of the substructure are listed in Table 2.3.

**Structure 65**
The rectangular platform labeled Structure 65, although located apart from the main substructure of Subcomplex D-3, is included in this discussion because of its close proximity and orientation to the structure group. Measuring 9 m long and 3 m wide, the structure rose about 45 cm above the main terrace. The structure had been badly robbed of stones, but sections of the retaining walls consisted of a single course of crudely shaped, rectangular blocks.

**Structure 66**
Structure 66 was almost identical to Structure 65 except that it was slightly longer, measuring 10.7 m long and 3 m wide. The masonry was the same. Both platforms apparently were foundations for perishable superstructures.

**Structure 67**
Structure 67 was the most impressive structure of Subcomplex D-3. A six-room, Pure Florescent vaulted structure, it measured 36.5 m long and 10.7 m wide. The vault was partially preserved in the center of the structure, but both ends were collapsed. Walls averaged 71.0 cm thick, and debris stood 4.6 m above its substructure at its highest point. Wall construction consisted of fine veneer masonry, and boot-shaped stones formed the veneer above the spring course. Jamb stones were preserved on the northern wall of the western room, and were placed about 1 m apart. Other jamb stones and monolithic lintels
were loose in the rubble on both sides of the structure in the vicinity of the center of the rooms. A portion of a medial cornice of engaged columns was preserved at the northwest corner of the structure.

**Structure 68**

A four-room, Pure Florescent vaulted building, Structure 68 measured 18.5 m long and 7.6 m wide. At the time of recording it stood 2.36 m high. Walls were several courses high and averaged 1.06 m thick. Rather large veneer blocks were used in the masonry below the spring of the vault. The vault debris contained boot-shaped stones. The north room had its jamb stones preserved in place on its western face. The width of this doorway was about 1 m. Loose jamb stones and broken lintels were noted in the rubble to the west of the south room.

**Structure 69**

Structure 69 was located on the southeast corner of Subcomplex D-3’s substructure. It was bounded on two sides, the north and the west, by Structures 68 and 70 respectively. It was an unvaulted single-room structure, evidenced by a single-course wall. The average wall thickness was 71 cm, and the south wall was 1.44 m above the substructure. The walls were of veneer masonry with no entrance preserved. The west wall was indistinct and may have represented an entrance.

**Structure 70**

Structure 70 was seen as a single-room, Pure Florescent vaulted building. About 2 m to the north of this building a carved jamb stone, Monument 3, was located in the rubble. The sculpture depicted a man seated cross-legged on a cushion bearing what appeared to be a name glyph. The head was adorned with what appeared to be a plumed headdress. The figure wore a necklace of large beads and a pendant. The jamb stone appeared to predate the surface ruins it was found among, suggesting the possibility of earlier structures below the present ruins.

Structure 70 measured 10.7 m long east-west, 3.0 m wide, and had a maximum height of 91.0 cm above the plaza floor. Walls below the spring of the vault were of veneer masonry and averaged 73 cm thick. Vault debris consisted of rather small but well made boot-shaped vault stones. The building was badly collapsed and no doors were preserved, although a lintel was noted near the southeast corner.

**Structure 71**

Structure 71, probably a single unvaulted room, appeared as a badly disturbed single-course wall. Only sections of the inner walls were apparent, consisting of crudely dressed rectangular blocks. The walls appeared to have been a double row of these blocks approximately 20 to 25 cm in thickness. The structure rose about 85 cm above the substructure, and had no apparent entrance. A heavily disturbed area on the western wall may have represented a former doorway.

**Structure 72**

Structure 72 was located along the western edge of Subcomplex D-3’s substructure. It was a four-room, Pure Florescent vaulted structure measuring 18.4 m long and 7.6 m wide, standing 3.4 m above the substructure. Walls below the spring of the vault stood several courses high, measured 56 cm in thickness, and were of fine veneer masonry where visible. The vault had totally collapsed, liberally sprinkling the structure with boot-shaped vault stones. No entrances were preserved, but jamb stones and lintel fragments were among the rubble on the eastern slope.

**STRUCTURES OF COMPLEX E**

Complex E consisted of three structures—one Pure Florescent vaulted building and two small platforms—all erected on the same large substructure. This substructure was about 30.0 cm high on the southwest side and rose to a maximum height of 1.5 m near the eastern corner. It measured about 37 m in length and 30 m in width. The retaining walls, which at one time consisted of one or more courses of poorly dressed limestone slabs, had collapsed.

**Structure 77**

Structure 77 was the remains of a Pure Florescent vaulted building situated on the platform terrace of Complex E. The structure was approximately 27 by 6 m in horizontal dimensions. Although few walls were visible on the surface, numerous blocks from concrete veneer walls and boot-shaped vault stones were present in the rubble, giving ample evidence of the nature of the building. One doorway was intact in the middle room on the southwest side, though the wall had collapsed (Fig. 2.6). A stone lintel spanned the 80 cm between the jambs. Part of a monolithic column was

![Figure 2.6. Doorway standing in place on the southwest side of Structure 77, Complex E. The distance between jambs is approximately 80 cm.](image)
found near the structure. A metate was also present on the surface of the substructure near the building.

**Structures 78 and 79**

Structures 78 and 79 were both small platforms situated on the main substructure of Complex E. Both measured about 7 m in length, 2 m in width, and 15 cm in height. No parts of the retaining walls remained intact.

**Structures of Complex F**

Complex F consisted of a large, three-room Pure Florescent vaulted building with an L-shaped ground plan, and a two-room, rectangular unvaulted structure. Both buildings were situated on a large, platform-terrace substructure that varied from 1.5 to 2.0 m in height. The retaining walls of the substructure had collapsed and were not visible on the surface. The maximum horizontal dimensions for the substructure were estimated at 26.0 m long and 22.5 m wide.

**Structure 84**

Structure 84 was a large, four-room, Pure Florescent vaulted building situated on the main platform-terrace substructure of Complex F. It was not clear whether two vaulted structures were present or instead if the entire ruin was once a platform with an L-shaped ground plan. Many of the limestone blocks from the structure had been removed for re-use in nearby albarandas, but boot-shaped vault stones and facade stones carved with the “reed” motif were present in the rubble. No doorways were visible on the surface of the structure, but jamb stones were noticed lying in the rubble. [Editor’s note. This description of Structure 84 and that of Structure 85 below, were written from the Season 2 survey notes only. In 1969, Edward Kurjack returned with a separate crew and excavated both structures together. Although these excavations have not been reported in detail, a summary statement is given in the Editor’s Appendix to Part 3, this volume.]

**Structure 85**

Structure 85 was a two-room, rectangular unvaulted building situated on the substructure of Complex F. Surviving masonry consisted of a double row of dressed slabs forming the basal course of masonry. The corners of the structure were easily found, for they were formed of large, very neatly dressed blocks that were high enough to span several courses of masonry. The structure measured approximately 6.4 m by 3.0 m. Near this structure, on the surface of the platform-terrace that elevated the entire complex, ceramic fragments were found that are listed in Table 2.3.

**Structures of Complex G**

Complex G consisted of a three-room, rectangular unvaulted building and a low platform, both of which were elevated on the same large terrace-platform. This large substructure measured 27.5 m in length and 24.0 m in width. The height of the platform varied from about 50 cm to 2 m. The retaining wall had collapsed and was buried.

**Structure 90**

Structure 90 was a three-room, rectangular unvaulted structure constructed on a platform 1.8 m high. Only a single course of masonry remained intact, but this masonry was typical of Pure Florescent veneer construction. The average wall thickness was 50 cm. Jamb stones spanning the entire width of the walls were present on the west side of the two rooms on the northern end of the building. The remains of steps were present on the west side of the platform. Three unslipped striated sherds and a heavy grooved metate were collected on the surface of the structure.

**Structure 91**

Structure 91 was a low platform measuring 4.2 m in length and 4.0 m in width. The retaining wall was standing only in a few places; it consisted of a single course of large, undressed slabs about 25 cm high.

**Structures of Complex H**

Complex H consisted of two low platforms situated on a large platform-terrace that measured 41.0 m long, 25.5 m wide, and 75.0 cm high. The retaining wall was collapsed and buried.

**Structures 88 and 89**

Structures 88 and 89 were platforms, both about 1 m high. The retaining walls had collapsed. Structure 88 measured 7 m by 4 m, and Structure 89 measured 6.5 m by 5.5 m.

**Structures Not Associated with Plaza Complexes**

**Structure 28**

Structure 28 appeared to have been a long, rectangular three-room unvaulted building adjacent to Sacbe 1. Existing masonry consisted of a single course of crudely dressed blocks approximately 20 cm high, excepting the jambs. The basal course of masonry was constructed of two blocks, one facing each side of the wall, separated by a thin core that was once filled with mortar and rubble. Jamb stones consisted of neatly dressed blocks laid with their long axis perpendicular to the wall; thus a single jamb stone extended across the entire wall. The building was apparently not constructed on an elevated platform, though the presence of gravel on the interior surface of...
the rooms suggested that the floor level was once higher than the surrounding terrain. The exterior length of the structure was 15.2 m and the width was 4.6 m. Along the length of the wall, the largest jamb stone measured 0.6 m high by 0.5 m wide and 0.2 m long. The width of the doorways averaged one meter. A heavy grooved metate was encountered outside the east wall of the structure near the door of the south room. Examination of the surface of the structure resulted in a collection of seven sherds as shown in Table 2.3. [Editor’s note: This description of Structure 28 was written from the Season 2 survey notes only. In 1969, Edward Kurjack returned with a separate crew and excavated this structure. Although these excavations have not been reported in detail, summary statements are given in both the Editor’s Appendix to Part 3 and in Kurjack’s *Introduction to the Research in the Archaeological Zone*, this volume.]

**Structure 40**

Structure 40 was a long, narrow platform averaging 50 cm high, between Complex B and Complex F. Where parts of the retaining walls remained intact, they consisted of a single course of crudely dressed blocks. The structure measured 18.0 m long and 3.5 m wide. A single metate was found near the building.

**Structure 41**

Structure 41 appeared to have been a three-room, Early period vaulted building situated just west of Complex B. The walls were of true masonry; blocks used in the structure were crudely dressed on their exterior surface. The vault was also constructed with slabs, giving a relatively smooth face on the outside surface. Jambs and a stone lintel were present on the east side of the structure. A single metate was found near the building.

**Structure 46**

Structure 46 was situated in the center of Sacbe 2, about 23 m from its juncture with Structure 47. A square platform measuring 3.1 m by 3.1 m on its sides and about 15.0 cm high, Structure 46 may have been the foundation for a superstructure of perishable materials. No stela fragments were found in the area, so the structure was probably not a stela platform. Retaining walls consisted of a single course of crudely dressed blocks. A large, heavy grooved metate was recorded amid the rubble of the platform.

**Structure 80**

Structure 80 was a two-room, rectangular unvaulted structure, located just west of Sacbe 1, which measured approximately 6 m long by 3 m wide. Two courses of masonry remained intact; each course consisted of a double row of small slabs dressed on the exterior face only. Rubble and mortar once filled the thin space in the core of the wall. No evidence of even a small platform substructure was noted. One metate was found near the structure. [Editor’s note: This description of Structure 80 was written from the Season 2 survey notes only. In 1969, Edward Kurjack returned with a separate crew and excavated this structure. Although these excavations have not been reported in detail, a summary statement is given in the Editor’s Appendix to Part 3, this volume.]

**Structure 81**

This structure was a low platform, 1.0 to 1.5 m high, located north of Complex A and west of Sacbe 1. The retaining walls, which had once consisted of several courses of crude slabs, had collapsed. The platform measured 10.0 m long by 6.5 m high.

**SPECIAL FEATURES**

During the 1967-68 field session, objects of interest were designated and recorded as “special features.” Of these, six were monolithic pieces of sculpture: stelae, cylindrical stone monuments, and a carved jamb stone. The seventh feature was a well-preserved chultun to the southeast of Subcomplex D-3. All stelae, stone monuments, and chultunes were plotted on the topographic map.

**Stela 1**

Stela 1 was observed lying face up near the center of Sacbe 1, about 310 m south of Structure 28. It was a badly eroded stela fragment with only the faintest outline of a curvilinear design still apparent on its surface. The fragment measured 15 cm thick and 91 cm wide with a maximum length of 1.01 m.

**Stela 2**

Stela 2 was shattered, resting on its back in the elevated plaza of Subcomplex D-3. The surface had become so badly pitted that almost all surface designs were obliterated. The stela measured 28.0 cm thick, 1.6 m long, 54.0 cm wide at its top, and 44.0 cm wide at its base.

**Stela 3**

Stela 3 also was lying face up, shattered. Due to such direct exposure to the elements, only a small area near the base of the stela has any design apparent. No distinguishable pattern could be interpreted except for an area of curvilinear lines near its base. Stela 3 measured 1.35 m long and 25 cm thick. At the top it was 61 cm wide, and at its base, 54 cm wide.

**Monument 1**

Monument 1, a badly pitted stone column, was located to the east of Structure 37 in the plaza of Complex B. Measuring 55 cm in diameter and 1.42 m long, the monument lay with one end resting in a 1.1 m square area, outlined by a single course of unworked limestone rocks.
Monument 2

Monument 2, located near Stelae 2, 3, and Monument 3 in Subcomplex D-3, was a monolithic tapered stone column. Its surface was only slightly eroded, and no designs were present. The stone apparently once stood upright. It was 1.22 m high, 54 cm in diameter at its base, and 36 cm in diameter at its top. The top was rounded off, while the base was flat.

Monument 3

Monument 3, as previously discussed, was a carved jamb stone, fairly well-preserved, located on the substructure of Subcomplex D-3 (Figs. 2.7, 2.8). The jamb stone was found face down, accounting for its better state of preservation. The carving represented a person of apparently high rank, seated on an ornate cushion bearing what seemed to be a name glyph. The person was wearing a necklace of large beads and a plumed headdress. The jamb stone was 1.24 m long, 63 cm wide, and 22 cm thick. The area of design was 89 cm by 55 cm and about 1 cm deep.

Chultun

The seventh feature was a well-preserved chultun, or cistern (Figs. 2.9, 2.10). Unlike other chultunes found nearby, this one had intact walls and relatively little fill. Penetrating the surface near the southeast corner of Complex D's terrace, it had a rubble fill, the surface of which was about 2.6 m below the ground level.

Several other chultunes in this area were noted to have a thick, coarse, stucco coating on their interior walls, but this coating seemingly had flaked off or was never applied to the one under discussion. Having an entrance diameter of 70 cm, the shaft was hewn into the decomposed bedrock underlining the terrace fill for a depth of 50 cm before flaring into the bell-shaped body of the interior. A surface collection was made from the rubble fill and is presented in Table 2.3.

BLUFF SHELTERS AND CAVES

The Puuc Hills of Yucatán are well known for their abundance of caves and their scarcity of surface water. Because of this scarcity, pre-Columbian peoples of the Puuc Region were constantly searching for sources of water such as caves or pools. By the advent of the Pure Florescent period, the ancient Maya had learned to

Figure 2.7. Monument 3, a carved jamb stone found on the substructure of Subcomplex D-3.

Figure 2.8. Artist’s depiction of Monument 3.
Historia; it is the result of many years’ experience, both in visiting some of the caves and in collecting accounts of these caves from the inhabitants of Oxkutzcab. Within this radius, Dr. Barrera records the names and general locations of 53 caves. One of these, the well-known cave of Loltun, was visited and described by Edward Thompson (1897a) in 1888. Two others have been investigated by University of Alabama field parties. The first was X-Kukican cave (Part 1), and the second was Actun Chac Mool, investigated during the 1967-68 session. The latter is discussed in this report under the title Bluff Shelter No. 4. Included in the list are 11 unexplored caves located within the Archaeological Zone. This field session has added three additional caves to the list, and has resulted in the investigation of one—Gruta de Kochleé—which requires further study.

During the 1967 fieldwork in the Archaeological Zone, four caves and one bluff shelter were located and explored. The bluff shelters are overhangs of rock, or simple cracks and fissures in the rocks, while the caves are extensive passages often combined with large rooms extending for some distance underground. Three of the caves and the bluff shelter examined during this field session were found relatively close to each other in an area southeast of Complex A. A separate topographic map was made of this area (Fig. 2.11). The fourth cave, a small sink locally known as Actun Mis, was located near the field camp at San José X-Kuncheil. It was found to contain only a few badly eroded, unidentifiable sherds. Due to the small size and insignificance of this sink, it is not described further and was not plotted on the topographic map.

**Bluff Shelter No. 4**

In addition to the three bluff shelters found during the previous season’s research, a fourth shelter was discovered in 1967. Located approximately 880 m southeast of the cave of X-Kukican, it appears to have been a large, underground chamber whose roof had collapsed, forming a circular pattern of overhanging rock. Only two small passages were located, and neither extended beyond 4.6 m to 6.0 m underground. The entire area encompassed by the rocky overhang was approximately 0.9 m below the surrounding terrain and was covered with large limestone boulders. Ceramics consisting of several medium slateware sherds, one or two evidencing “trickling,” and several unslipped, striated sherds were encountered on the surface under the overhang. No further investigation was deemed necessary.

**Gruta Xucnai**

Approximately 110 m west of Bluff Shelter No. 4 was a small cave of three confined rooms and three low, narrow connecting passages. The cave entrance was a large crack in a limestone outcrop; the floor dropped downward to an approximate maximum depth of 4.5 m. A large bowl of recent origin similar to bowls displayed for sale in the
nearby town of Ticul, noted for its ceramics, was found and removed from a rock shelf at the right side of the first room. From a location farther back from the bowl, one could see a small opening to the surface a short distance from the main entrance. The bowl was recovered and recorded, as it retained traces of burned copal. No other ceramics were noted.

Gruta de Kochléé

A draft of hot air emanating from a crevice between some rocks provided the clue to the discovery of the purposely sealed entrance to a previously undisturbed cavern. Found in the final week of fieldwork during an exploratory hike in the area of the three previously discovered caves, it was located some 850 m southeast of the cave of X-Kukican.

Upon removal of enough rocks to allow entry to the chambers below, investigators observed that the entire entrance area had been completely sealed with large boulders to a height of at least 1.5 m. Apparently, dirt had then been put over the boulders to complete the closure of the entrance. One can only guess as to the date of the sealing, but the totally undisturbed nature of the covering and the interior of the cave leads one to believe that it had been accomplished far in the past. A steep slope led downward from the entrance to a large shelf composed of loose boulders and dirt, apparently the remains of the collapse of the ceiling above. From this point several passages branched off in various directions, nearly all with a downward trend. Time allowed only a very cursory exploration of three of the passages for any extent. As the cave was only slightly explored, the present account is necessarily limited.

During the first visit to the cave, debris in a passage extending in a southwesterly direction back under the entrance was investigated. At the entrance to this passage, a large boulder presented a flat surface decorated with numerous, full-scale, positive handprints done in
black, probably consisting of a carbon compound. The passage ended in a room containing rock depressions in travertine formations filled with water dripping from the ceiling. The passage and floor of the room were covered with sherds, mostly of the medium slate and unslipped, striated ware types. A brief investigation revealed these to be predominantly jar sherds, implying that the rooms served as a source of water.

On the final day of fieldwork, a second visit to the cave was made to record the handprint panel. An hour or so was spent in exploring the area around the western side of the entrance slope, where a series of passages was located above the entrance where the handprints were found. While investigating a passage partially filled with rubble, which led downward from the western side of the entrance slope, researchers found a well-preserved polychrome, basal flange bowl (Fig. 2.12). Encouraged by this find, the explorers entered the series of passages above the area of the handprints. Resting in the center of the trail in one of these passages lay a medium slate, basal angle break, tripod plate broken in half. Adjacent to the plate lay a delicately executed effigy mano of fine-grained limestone (Fig. 2.13). The grinding surface of the mano was covered with a thick red pigment and there were spots of the same pigment adhering to the stylized face represented on its surface. Both the polychrome vessel and the effigy mano were removed for further examination, and drawings were made of them before the field party departed from Merida for Alabama. The entrance to the cave was carefully resealed in order to protect the as yet unexplored portion of the cave before the field party left camp.

**Gruta de Bec**

This rather large cave, located approximately 800 m southeast of the cave of X-Kukican, was subjected to a fairly extensive preliminary investigation during the 1967-68 field season. The cave was known to the local crew members and had been entered previously by other persons. The entrance to the cave was found sealed with a wall of loose stones, which were removed to obtain access to the main passage. Two smaller entrances approximately 4.5 m to the right of the main entrance were found to be only about 5.0 m in length.

The main passage wound approximately 60.0 m downward and opened onto a large room, 4.5 m or more below the end of the passage. Access to the floor of the

![Figure 2.12. Polychrome basal flange bowl, found in the first room of Gruta Kochleé.](image-url)
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room was gained by a large travertine formation, which sloped downward. At no point on this trail did the ceiling height exceed approximately 1.2 m. From this lower chamber, several trails, only one of any significant length, branched off in two general directions.

At no time was any water noted in the cave, although a large, heavy grooved metate was found on the trail just above the travertine formation in the rear chamber. As the presence of the travertine, a water solution formation, implies former cave activity, and since metates are known to have been used under water drips as catch basins, it can be safely assumed that the cave had at one time been a source of water for the ancient Maya. Also, a heavy grooved metate collecting a small amount of dripping water was noted under the rock ledge overhanging the entrance.

Ceramic collections were obtained from the neighborhood outside the entrance to the cave and another sample was removed from the floor of the back chamber about 65 m from the entrance (Table 2.4). A small cache located approximately 43 m from the cave’s main entrance on the southwest side of the passage was found and removed for analysis. Located under a large rock slab, the cache appeared to be a fragmentary burial. Included in the cache was a small ceramic pitcher of coarse limestone temper, which resembled a modern cream pitcher in form. The remnants of a small handle were on the back. Measuring 7 cm high and 6 cm wide, the pitcher had a single incised line encircling the vessel just above its shoulder. A residue of burned copal coated the bottom of the inside, and the exterior surface had a thin coating of soot. The vessel has been identified as being of modern origin, probably from the nineteenth century (Andrews, pers. comm., 1967). A broken and incomplete shell adorno, also from the cache, showed surface polishing and three perforations. The missing fragment is assumed to have possessed a fourth perforation. Measuring 5 cm wide and 7 cm long, the shell was probably worn as a necklace ornament. The only skeletal remains consisted of a single, badly decomposed vertebra.

The surface collection at the entrance of the cave included a well-made conch shell pendant 4.5 cm long and 3 cm wide. The pendant had two holes at its top for suspension on a necklace or cord. The surface had been polished to a high gloss. Eight flint flakes of an opaque, creamy brown to gray brown color were also collected. They resembled the type of flint used in the manufacture of the projectile point found in the lower chamber.

The lower chamber of Gruta de Bec was found to have a preponderance of jar sherds, mainly of unslipped, striated ware. A large, excurvate, straight stemmed projectile point of opaque, creamy brown color was also found. Measuring 17.5 cm long by 5.0 cm wide at its shoulder, the point exhibited fine pressure flaking along its edges. It was biconvex in cross-section and had a maximum thickness of 0.5 cm.

**SIGNIFICANCE OF THE MAPPING PROGRAM**

This report of the second season’s work describes the considerable effort expended in mapping the large and

<table>
<thead>
<tr>
<th>Type</th>
<th>Surface, entrance to Gruta de Bec</th>
<th>Surface, back room Gruta de Bec</th>
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<tbody>
<tr>
<td>MEDIUM SLATEWARE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basal Angle Break Tripod</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Jar</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>COARSE SLATEWARE</td>
<td></td>
<td></td>
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<tr>
<td>Hemispherical Bowl</td>
<td>1</td>
<td></td>
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<tr>
<td>UNSLIPPED</td>
<td></td>
<td></td>
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<tr>
<td>Florescent Incensario</td>
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<td>1</td>
</tr>
<tr>
<td>Striated Utility Jar</td>
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<td>3</td>
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<tr>
<td>Nonstriated Utility Jar</td>
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<td>1</td>
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Table 2.4. Sherds from Gruta de Bec.
small ruins that abound in the area of the Archaeological Zone of X-Kukican. The experience gained during this operation will enable larger teams of field workers to expand the project during the next field season. When completed, the map of X-Kukican may well be the most important result of the whole project, for the collection and analysis of data concerning the houses of the ancient Maya—their structural features, temporal distribution, and spatial organization—is expected to provoke questions that may lead to new insights concerning the nature of Maya society.

The goal of anthropological research at an archaeological site such as X-Kukican is an interpretation of the community and the component institutions once occupying the buildings that now lie in ruins. It is considered axiomatic that the form of each building reflects its function, and that each building was constructed to house a particular social group; thus the form and content of each physical plant can be considered evidence of the size and purpose of the institution that used it. Ethnographic analogy can be used with varying degrees of reliability to secure the assumptions necessary for the interpretation of this evidence.

A guide to the kind of study outlined above can be put together through the examination of the evidence already compiled in this report, even though an exploration and mapping of X-Kukican has only begun. A survey of the preliminary map compiled to date, comparing the various buildings recorded, results in a series of contrasts that must be explained by students of Maya society. The contrasts are not unexpected, for similar differences are evident on the recently completed map of Dzibilchaltun (Scheffler et al., 1963).

The first and most obvious contrast is that individual structures at X-Kukican exhibit a wide range of size, form, and method of construction. The structures vary from what must have been small, single-room, thatch-roofed buildings with wattle-and-daub walls, to large masonry-walled and thatched construction, to large and small examples of formal, all-masonry Maya architecture. The second item of contrast is that most of the buildings are grouped on what have been called plaza complexes. Another related contrast is that the architectural content of the complexes is quite varied: some are large groups of architecture containing many vaulted buildings, while others are relatively small with only a few flimsy structures present. A fourth comparison—much more tenuous than the others, at least until further field work is completed—suggests that a much higher percentage of the ruins at X-Kukican are found associated with the plaza complexes than at Dzibilchaltun, the nearest site where adequate comparative data have been gathered.

A preliminary interpretation of these observations, based on relatively few assumptions, can be offered as a hypothesis for future testing. The necessary assumptions and the reasons for making them are listed as follows: First, studies attempting to ascertain the temporal distribution of the ruins lead the investigators to believe that most of the buildings at the site were built and occupied during the late Classic Stage (late Early period or early Pure Florescent period). Further excavation, of course, will allow refinement of this statement. Second, it is noted that most buildings erected by preindustrial peoples in tropical areas of heavy rainfall are of a domiciliary nature. (This seems to be true the world over.) This idea leads to a bias on the part of the senior author: he believes that most of the structures at X-Kukican were dwellings. It is further believed that most of the vaulted structures at X-Kukican were dwellings, in spite of Thompson’s (1954:57-60) suggestion to the contrary and the agreement of certain other students (see Bullard, 1964:284). A corollary assumption is that most of the plaza complexes were also domiciliary in nature; and, due to their size, it is postulated that they probably housed extended families. Sanders (1962:98; 1963:208), Bullard (1964:281) and Vogt (1964a:316-317; 1964b:26-28) would accept this contention. Ethnohistorical research (Roys, 1965:661-664) has been interpreted by Vogt (1964b:26-28), Coe (1965:104) and others as an indication that patrilineages and patrilocal extended families were probably quite important in Classic stage Maya society. If such residential kin groups were a part of social structure, they may have been housed in plaza complexes like those described in this report.

Bullard (1964:284-285) proposes a quite equalitarian model of Classic Maya society in his studies of evidence much like that found in this report. The house remains studied by Bullard seemed to have all been large and well-constructed. Certainly those “ordinary house ruins” he illustrated (1960:258) were impressive enough by comparison with most of the houses found at Dzibilchaltun (Kurjack, 1964). Bullard concluded that the Maya peasantry was wealthy and socially mobile. The social distance between the priestly elite and the farmers sustaining the religious hierarchy thought to have ruled the society could not have been great. Perhaps, Bullard suggested, the priests themselves were peasants (especially in the lower ranks), temporarily recruited in a manner similar to the choosing of cargadores responsible for the religious festivals of the Maya highlands (see Vogt, 1964a and Cacian, 1964).

The contrasts reported from the limited work at X-Kukican, however, may be interpreted as supporting a view somewhat different from Bullard’s reconstruction of Maya society. If the various single buildings recorded on the map of X-Kukican are ranked in terms of energy cost, this examination, as suggested by the first of the contrasts reported above, would show that the value of houses inhabited by individual families at the site was highly variable. This indicates that the families once living at X-Kukican had unequal access to goods and services afforded by their society; in other words, a study of domestic architecture at X-Kukican would show that...
Maya society may have been highly stratified. This view, almost the opposite of that proposed by Bullard, is the conclusion of a detailed examination of architecture at Dzibilchaltun (Kurjack, 1964) and is firmly supported by the data thus far gathered from X-Kukican.

Plaza complexes can also be compared in terms of energy cost. The complexes, presumed to have been the dwelling places of patrilocal extended families or even small lineages, exhibit a similar disparity when thus arrayed—showing that some extended families or lineages held much higher status than others. This would be the expected result if the non-residential kin were ranked both internally and externally as suggested by Coe (1965:104) and others. Members of groups like Roys’ (1965:662) patronymic sibs probably belonged to several different classes of society. In addition, some extended families, some lineages, and some of the larger name groups must have possessed much greater status and prestige than others.

Very few individual structures are found outside of plaza complexes at X-Kukican; thus it can be assumed that most of the people worked and lived in extended family groups. Such groups were an important and viable part of the social organization. A comparison with Dzibilchaltun, however, shows that many of the individual structures there (mostly the remains of small buildings, inexpensive in terms of energy cost) were not situated in such complexes. Thus it would seem that many people at Dzibilchaltun did not live within large extended families. Presumably, many of the functions usually assumed by such larger, kin based institutions were the responsibility of the nuclear families. Perhaps a breakdown of the older forms of social organization was characteristic of the larger and more complex Classic centers.

These preliminary observations are based on quite limited data. Much more mapping and inspection of ground plans visible on the surface is needed to bolster the admittedly weak base of this argument. Especially important in the planning of future studies is the need for complete excavation of a large series of smaller unvaulted buildings and platforms. While larger and more spectacular vaulted buildings have been completely excavated, smaller structures usually have been only test pitted. Data concerning the form and content of the smaller and more delicate examples of domestic architecture are available in the field today, but in the near future may unwittingly be destroyed by the expanding modern population. The X-Kukican project affords an excellent opportunity to secure information on this kind of architecture.
Part 3.
Third Field Season At The Archaeological Zone
Of X-Kukican, Yucatán, Mexico

by Jerry J. Nielsen and Craig T. Sheldon, Jr.
(July 1971)

This report represents the results of the 1969 archaeological field season conducted by the University of Alabama and the Instituto Yucateco de Antropología e Historia at the Archaeological Zone of X-Kukican, Yucatán, Mexico. Under the terms of the contract between the University of Alabama and the Instituto Nacional de Antropología e Historia, the field crew had permission to continue the topographic mapping of the Archaeological Zone, plotting the structural remains as well as the contour lines. Also permitted was the uncovering of surface structures and the investigation and mapping of three caves located during the previous 1967-1968 field season. The multitude of surface structures encountered allowed only the continued topographic mapping of the Archaeological Zone and surface structures during the 1969 season. The mapping of the caves has been postponed until another field season can be arranged.

Upon approval of the archaeological contract by all parties, the University of Alabama field crew departed for Yucatán from Moundville, Alabama. The crew was composed of a field supervisor, Edward B. Kurjack, and three University of Alabama students, Ned Jenkins, Caleb Curren, and Ron Rainey. Upon their arrival at the University of Alabama field station at San José X-Kunchiel on March 24, 1969, they spent several days putting their living and working quarters in order. After completion of these preliminary duties, the field crew from the University conducted the topographic mapping and preliminary study of surface structures. A work force of eight local men was hired to help with various aspects of these duties. The field season ended on July 14, 1969.

SUMMARY OF RESEARCH PERFORMED DURING THE 1969 FIELD SEASON

Topographic mapping was conducted primarily within the area previously investigated during the 1967-1968 field season, in order to make sure that none of the unexpectedly numerous structures were overlooked and unrecorded. Additional ruins were encountered (Frontispiece) when the original mapping area was extended in an easterly direction. In sum, 67 additional surface structures were located and superficially examined. These structures were divided into ten complexes, bringing the total number of structures thus far located and investigated within the Archaeological Zone to 158 and the total number of complexes to 18.

A projection of Sacbe 1 beyond the point where the sacbe was visible on the surface was test trenched by the three University of Alabama students as a part of their class work. This trenching revealed the presence of the sacbe buried beneath a thin layer of red soil. This work is described in the body of the report.

MAPPING PROCEDURES

During the 1969 field season at X-Kukican, topographic mapping was continued in the area to the north and northeast of the Complex A Acropolis. It was revealed during the previous field investigations that the valley floor between the ridges of the Puuc Hills contained numerous structures, usually grouped together. Many of these postdated the buildings clustered around the
entrance to the cave of X-Kukican, although at least one set of buildings has been shown to have been connected to the Acropolis by Sacbe 1. This sacbe, indicating contemporaneity of Complexes A and B, was more fully investigated during the 1969 field season. The results of this work are discussed in a subsequent section devoted to “Special Features.” Because the profusion of architectural remains on the valley floor made it necessary to determine that no structure groups be overlooked during this preliminary mapping, efforts were again concentrated in the area superficially examined and mapped in the 1967-1968 field season. This second effort was felt necessary by the field supervisor in order to properly evaluate and/or substantiate population or settlement hypotheses.

Mapping procedures were much the same as those of the previous field season. Stations were established, drawing their elevations from the arbitrarily established benchmark set up during the first field season at X-Kukican. From these stations, radial lines were cut through the brush in all directions until architectural features were encountered (Fig. 3.1). Upon the discovery of previously unexamined structures, efforts were directed at the preliminary investigation and definition of each such feature. It must be noted that such definition is tentative at best, as most remains are seen as mounds of collapsed and scattered rocks. Rarely will two people recognize identical placement of entrances or other elements of construction. They will, however, usually agree on the basic shape, size, and type of masonry construction. For the purpose of preliminary study, such information will suffice to spur the investigators on to the formulation and pursuit of hypotheses. This information also allows general statements to be made as to the distribution and association of architectural types. The elevations and measurements made during this mapping were combined with the information previously gathered, and present an impressive array of Maya architecture for study. The use of the grid of 100 meter squares with labeled coordinate lines was continued, which allowed the researchers to readily locate the structures on the base map (Fig. 3.2). The value of the grid coordinates at the northwest corner of a square determined its designation.

A second reward of this mapping, besides the formulation of a base map, is the initiation of workers in regard to the terrain and archaeology of this unique area. The crew, with the exception of the field supervisor, had no previous experience in Maya field archaeology. The efforts of physically searching out these ruins and defining them offered a new view and appreciation of the culture that had constructed them. This appreciation and firsthand knowledge provided the initiative needed to enable a worker to absorb quickly the techniques required for such research, and created a desire to delve further into the study of Maya archaeology as a whole.

**SURFACE RUINS**

During the 1969 field season at the Archaeological Zone of X-Kukican 67 structures were located and recorded. These structures varied in form from small, one-room unvaulted buildings to large multi-room, vaulted buildings situated on massive stone platforms, to barren stone platforms, to simple stone block or unworked stone walls surrounding a chultun. For convenience, the authors followed the use of structure complex nomenclature as was done in the report on the 1968 field season (Kurjack et al., 1968; Part 2 this volume). These complexes are in no way meant to suggest that this was necessarily the manner in which the original inhabitants considered them grouped. Rather, the criterion employed was proximity. Often, as in the case of several of the examples seen on the base map (Frontispiece), structures of a given complex are confined to a single platform; their relationship is evident.
More tenuous is the combining of structures haphazardly scattered on several platforms into a complex, as in Complex B or Complex I. However, grouping by relative proximity was considered useful for the purposes of this report.

Previous field seasons at X-Kukican revealed eight major complexes containing a total of 91 structures (Cottier, 1967; Kurjack et al., 1968; Parts 1 and 2, this volume). The third field season added ten additional complexes of 67 structures. As was done in the previous report of the 1968 fieldwork, the discussion of structures was numerically ordered under their respective complex headings. Structure number 92 was left unassigned.

Three structures were located which could not be satisfactorily associated with any of the complexes established thus far at X-Kukican. These are to be discussed under the heading “Structures Not Associated with Plaza Complexes.”

**STRUCTURES OF COMPLEX I**

Complex I consisted of eight platforms, four of which had superstructures on their surfaces. Structure 81, a stone platform discovered during the second field season, has been included in this complex.

**Structure 93**

Structure 93 was an unvaulted, two-room building situated on a large stone platform 24.5 m long, 20.8 m wide, and 2.4 m tall, together with Structures 94 and 95. The retaining walls of the platform had collapsed and were buried under the rubble fill. This structure was 11.2 m long and 3.7 m wide. Three entrances were observed, with a fourth probably obscured in the collapsed southwest wall. The entrances apparently occurred two to a room, opposing each other, located midway on the longitudinal wall. The walls of the structure were observed as a double row of crudely faced limestone blocks with a slight concrete fill between the blocks. Average wall thickness was 55.9 cm and the maximum height of the wall debris was 28.0 cm. A single heavy grooved metate was noted near the center of the south wall, just outside of the building.

**Structure 94**

Structure 94 was a single-room, vaulted building measuring 4.1 m long and 3.3 m wide. The south and west walls were badly collapsed, but a single entrance was observed in the center of the east wall. Wall construction was similar to that of Structure 93. Average wall thickness was 43.2 cm and the maximum height of the wall debris was 15.2 cm. A fragment of a heavy grooved metate was observed outside of and to the northeast of the entrance.

**Structure 95**

Badly collapsed and disturbed, Structure 95 was defined as a rectangular, two-room unvaulted building. Measuring 10.2 m long by 3.4 m wide, the building had an average wall thickness of 0.7 m. The disturbed condition of the structure negated the definition of entrance positions. The maximum height of the wall debris was 17.8 cm. A single heavy grooved metate was found outside the building, near the center of the south wall.

**Structure 96**

Structure 96 was a collapsed stone platform. No superstructure was observed. The platform measured 16.2 m long, 9.0 m wide, and 20.3 cm tall. The retaining wall, probably a single row of crude blocks, had collapsed and was covered by the loose stone rubble fill. This platform was located approximately 15 m west of the platform supporting Structures 93, 94, and 95.

**Structure 97**

Structure 97 was a small, unvaulted two-room building. Each room had a single entrance near the center of the east wall. Wall masonry consisted of a double row of crudely faced stone blocks. The building measured 8.5 m long by 3.5 m wide, and was situated on a 7.6 cm high stone rubble platform. The platform measured 11.9 m long and 8.6 m wide. No evidence for the retaining wall of the platform was noted. The widths of the entrances of the superstructure were approximately 30.5 cm. Average wall thickness was 30.5 cm, and the maximum height of the wall debris was 30.5 cm. A fragment of a heavy grooved metate was noted near the exterior of the northeastern corner of the building. This structure was located 5 m north of Structure 96.

**Structure 98**

Structure 98 was a single-room, unvaulted structure mounted on a square stone platform. The building had a single entrance near the center of the south wall. Measuring approximately 3.4 m square, the structure had wall masonry consisting of a single row of crudely faced rectangular stone blocks. Average wall thickness was 23 cm, and the maximum height of the wall debris was 31 cm. The entrance was 36 cm wide. The substructure consisted of a 60 cm high rubble-filled platform measuring 15.8 m long by 15.7 m wide. Also situated on the same platform was Structure 99. Structure 98 occupied the south-central portion of the platform, while Structure 99 extended along the western edge. This platform was located approximately 5 m north of Structure 97.

**Structure 99**

Found in a very poor state of preservation, Structure 99 could not be clearly defined. Apparently one or two rooms were represented in an area measuring 7.5 m in length by 3.0 m in width. Crudely shaped stone blocks were observed in the area of the projected walls. The maximum height of the wall debris was 15 cm.
Structure 100

Structure 100 was an isolated square platform of stone rubble, measuring approximately 3.5 m square. The platform stood approximately 15 cm tall. No evidence of a superstructure was noted, and no evidence of a retaining wall was found.

Structure 101

Situated on a large stone platform, Structure 101 was associated with Structure 102 on the same platform. Structure 101 was a three-room, unvaulted building measuring 9.6 m long by 3.7 m wide. Doorways were noted near the center of the north wall for the two end rooms, but no entrance was observed for the center room. Presumably it would have been positioned similarly to the doors for the end rooms. Wall masonry consisted of crudely dressed square blocks placed in a double row. Average wall thickness was 31 cm, and the maximum height of wall debris was 15 cm. The substructure of this structure and Structure 102 was rubble filled, measuring 18 m long, 15 m wide, and 61 cm tall. No evidence of a retaining wall was observed. This group of two structures was located 10 m southwest of Structure 100. Fragments of heavy grooved metates were noted at both the northeast and northwest exterior corners of Structure 101.

Structure 102

Structure 102 was a three room, unvaulted building similar to Structure 101. The wall masonry consisted of a double row of crudely dressed stone blocks. This structure measured 10.2 m long and 2.9 m wide. No evidence of entrances was noted. The average wall thickness was 31 cm, and the maximum height of the wall debris was 15 cm.

Structure 103

A rectangular stone platform, Structure 103 was located approximately 15 m south of Structure 101. Measuring 11.6 m long by 11.1 m wide, the platform was approximately 20 cm in height. No evidence of a retaining wall was noted, although it was probably buried under the collapsed rubble fill. No evidence of a superstructure was observed either, although one of perishable material was probably supported.

STRUCTURES OF COMPLEX J

Complex J consisted of a major platform measuring 55.0 m long, 30.5 m wide, and 1.5 m tall, which supported eight structures and three chultunes. Included also in this complex were two structures adjoining each other, located only 25 m north of the edge of the major platform. The first eight structures discussed below were situated on the main platform.

Structure 104

Structure 104 was a three-room, unvaulted rectangular building. Each room apparently had a single entrance located in the north-side wall, and no interior doorways were noted. Wall masonry consisted of a single course of crudely shaped stone blocks laid in a double row. Traces of a concrete core were present, filling in the gaps between the wall blocks. The average wall thickness was 41 cm, and the maximum height of the wall debris was 15 cm. The structure measured approximately 15 m long by 4 m wide.

Structure 105

Structure 105 was a small, one-room building. Unvaulted, the structure had walls composed of a double row of crudely shaped stone blocks. No entrance was noted. The building measured 4.0 m long by 2.4 m wide. The maximum height of the wall debris was 8 cm.

Structure 106

A rectangular, unvaulted structure of apparently only one room, Structure 106 had a low stone rubble platform extending 9.4 m in front of the east wall, or front, of the building. The width of the platform was the same as the building. No traces of the retaining walls were located. The position of the platform in regard to the structure indicated that a doorway would have led out onto this platform, although no evidence of such an entrance was found. The end of the platform butted against the southern end of the west wall of Structure 107. Structure 106 measured 7.6 m long by 4.6 m wide. The wall masonry was a double row of crudely shaped stone blocks with a slight concrete core. The average wall thickness was 36 cm, while the maximum height of the wall debris was 31 cm. A fragment of a heavy grooved metate was noted north of the northern end of the building.

Structure 107

Structure 107 was a long, rectangular unvaulted building. The collapsed condition of the structure negated the definition of interior walls. Presumably at least two, and possibly three rooms were present. A single entrance was noted near the southeast corner of the building. At the northeast corner, three heavy grooved metate fragments were located; one was in the wall, one was in the interior of the building, and one lay just outside the wall. The structure measured 17.5 m long and 3.0 m wide. Wall masonry consisted of a double row of crudely dressed stone blocks. Average wall thickness was 23 cm, while the maximum height of wall debris was 10 cm.

Structure 108

Situated in front of Structure 107 was Structure 108, a rectangular unvaulted structure. A single interior wall was noted, dividing the structure into two rooms, and a single entrance was observed in the west-side wall at the north room of the building. Presumably another for the south
room was buried under the collapsed wall debris. Wall masonry was a double row of crudely dressed stone blocks, some of which had a slight tenon, set with a slight concrete core. The average wall thickness was 41 cm, while the maximum height of wall debris was 31 cm. Three heavy grooved metate fragments were noted in the interior of the structure, and a whole metate was found outside near the northwest corner of the building. The building measured 8.2 m long by 3.0 m wide.

Structure 109

Represented by two wall fragments and their junction at a corner, Structure 109 can be only superficially described. The wall masonry was of a double row of crudely shaped stone blocks. No vault stones were present, and the proximity of surrounding structures would seem to suggest that the building could not have been more than a single room.

Structure 110

Structure 110 was a three-room, unvaulted building. One entrance per room was present along the eastern-side wall. The wall masonry was a double row of crudely dressed stone blocks with a slight concrete core. Average wall thickness was 61 cm, and the maximum height of the wall debris was 46 cm. The structure measured 11.1 m long by 5.0 m wide. A single heavy grooved metate was found outside of the west-side wall of the north room.

Structure 111

Structure 111 was a rubble-filled platform measuring 6.1 m long by 3.7 m wide. The maximum height of the platform was 20 cm. Its retaining walls were composed of a single row of crudely shaped stone blocks. No evidence of a superstructure was present.

Structure 112

Structure 112 was a badly collapsed structure, which can be described as the remains of a large vaulted building. The collapsed debris measured 22 m long by 6 m wide. Boot-shaped vault stones and tenoned veneer stones were observed scattered throughout the debris. This structure, together with Structure 113, appeared to represent a badly disturbed set of Pure Florescent buildings. It is not known whether they were associated with the other structures of Complex J, but due to their proximity they have been so included here. Both of these structures were situated on the remains of a large rubble-filled platform, 26 m long and 18 m wide. [Editor’s note: This description of Structure 112 and that of Structure 113 below were written by Nielson and Sheldon from the Season 3 survey notes only. Following the survey, Edward Kurjack returned with a separate crew and excavated these two structures. Although these excavations have not been reported in detail, summary statements are given in both the Editor’s Appendix to Part 3 and in Kurjack’s *Introduction to the Research in the Archaeological Zone*, this volume. As noted in the Appendix to Part 3, there is an apparent numbering issue, in that what is described here and on the base map as Structures 112 and 113 appear to be the same as Structures 113 and 114 in the subsequent excavation and laboratory notes.]

Structure 113

Structure 113, like Structure 112, was so badly collapsed that no proper definition could be made. Apparently it was a vaulted building of one, possibly two rooms. The collapsed debris measured approximately 10 m long by 7 m wide. Scattered boot-shaped vault stones and veneer stones were noted. The southwest corner of this set of structures was badly disturbed and covered with debris, and it is possible that the two structures were actually joined at this point to form an “L” shaped structure like Structure 84 in Complex F. [Editor’s note: The base map depicts the two structures as conjoined, but subsequent excavation confirmed that they are separate.]

STRUCTURES OF COMPLEX K

Complex K consisted of a large main platform measuring approximately 30.5 m square and 30.5 cm tall. The retaining walls had collapsed and were covered by the rubble fill. Situated on the surface of the platform were six superstructures and two chultunes. Adjacent to the southwest corner of the main platform and included in Complex K was Structure 114. An isolated structure, Structure 121, located to the northeast of this complex, is to be discussed under a subsequent section dealing with separate structures.

Structure 114

A two-room unvaulted building, Structure 114 was located just beside the southwest corner of the main platform of Complex K. Measuring 7.3 m long by 4.6 m wide, the structure had one entrance per room along the north-side wall. Wall masonry consisted of a double row of crudely dressed stone blocks. The average wall thickness was 43 cm, and the maximum height of the wall debris was 15 cm. [Editor’s note: The third season report (Nielsen and Sheldon 1971:20) has this structure as vaulted, but this is a typographical error. The field notes from the survey clearly state otherwise, and Structure 114 is shown as unvaulted on the base map.]

Structure 115

Located near Structure 114 but on the main platform, Structure 115 was a rectangular, unvaulted building of one room. Measuring 8.8 m long by 3.7 m wide, the structure had a single central entrance, 61 cm wide, in the side wall. The central doorway seemed to indicate only one room; this was supported by the fact that no interior walls were noted. Wall masonry was a double row of rather crudely
tenoned stones with a coarse concrete core. Average wall thickness was 36 cm, and the maximum height of wall debris was 90 cm.

**Structure 116**

Structure 116 was a two-room, unvaulted structure, which was littered with debris from its collapsed walls. This condition made it difficult to properly define the building. No entrances were observed, but at least two would have been present. Their location on the base map is presumed. The building measured 8.8 m long by 4.0 m wide. Wall masonry consisted of a double row of crudely tenoned stones with a concrete core. The average thickness of the wall was 46 cm, and the maximum height of the wall debris was 31 cm.

**Structure 117**

Structure 117 was an unvaulted building measuring 11.0 m long and 8.2 m wide. The size of the structure seemed to indicate that it possessed more than one room, but the badly collapsed condition negated their definition. For the same reason, no entrances were discernible. The wall masonry consisted of a double row of crudely tenoned veneer stones set in a concrete core. The average wall thickness was 31 cm, and the maximum height of the structural debris was 107 cm.

**Structure 118**

Structure 118 was an oval wall composed of a single row of unworked stones approximately 30.5 cm in thickness. No entrance was noted. This oval wall presumably represented the foundation for a thatched hut postdating Complex K. The wall was 4.9 m long and 3.0 m wide.

**Structure 119**

Structure 119 was a two-room unvaulted structure, the collapsed condition of which prevented a complete examination. Measuring 8.2 m long by 3.7 m wide, the building presumably had two entrances, one per room, although no evidence for either was located. The wall masonry was a double row of crudely dressed stone blocks. Average wall thickness was 46 cm, and the maximum height of the wall debris was 15 cm.

**Structure 120**

Structure 120 was a three-room unvaulted structure measuring 12.2 m long by 2.4 m wide. This building, as were others in Complex K, was badly collapsed, preventing full description. No entrances were noted, although it is presumed that each room had at least one. The wall masonry was a double row of crudely dressed veneer stones set in a concrete core. Average wall thickness was 31 cm, and the maximum height of the wall debris was 15 cm.

**Structures of Complex L**

Complex L was a relatively compact architectural group consisting of two superstructures, a main platform, and a collapsed chultun penetrating the surface of the platform. One of the superstructures adjoined the main platform but was not actually located on its surface. The main platform measured 24.4 m long and 23.2 m wide. The retaining wall was collapsed and buried by the stone rubble fill. Maximum height of the platform debris was 61 cm.

**Structure 122**

A two-room vaulted building, Structure 122 was one of the better preserved examples of Puuc style Pure Florescent architecture yet located in the Archaeological Zone. Two of the structure's walls still stood to a maximum height of 2.7 m, although the other walls were collapsed. A basal cornice of engaged columns was still preserved at spots along the standing wall (Fig. 3.3), and beautiful examples of fine stone veneering were present on the wall faces (Fig. 3.4). Two entrances were noted along the west-side wall, one per room. The building measured 11.8 m long by 3.6 m wide. Wall masonry, as mentioned, was a double row of tenoned veneer stones set in a concrete core. The average wall thickness was 76 cm. Two heavy grooved metates were found in the rubble of the collapsed walls. Although this structure was not situated on the main platform, it abutted the southeast corner and is considered an integral part of the complex.

**Structure 123**

Located at the northern end of the main platform was Structure 123, a four-room unvaulted building. Beside the western end of the structure was a collapsed chultun. The building measured 18.1 m long by 3.7 m wide. Five entrances were noted: two opposing doorways in the side

![Figure 3.3. Preserved basal cornice of Structure 122.](image_url)
walls for each of the two eastern rooms, none for the far western room and only one along the south side wall for the remaining western room. The lack of discernible entrances for the far western room may be accounted for by the badly collapsed condition of the structure in this area. Presumably at least one entrance would have been located here. The wall masonry was a double row of crudely dressed stone blocks. Average wall thickness was 61 cm, and the maximum height of the wall debris was 13 cm.

STRUCTURES OF COMPLEX M

Represented by two rectangular unvaulted structures, each on its own platform, the definition of these as a complex was based partly on their close proximity. In addition, the close similarity of these two buildings—their placement on platforms and their similar construction techniques—was notable.

Structure 124

Structure 124 was a two-room unvaulted structure situated at the apparent eastern end of a rubble filled platform. The platform measured approximately 16.8 m long by 14.6 m wide. The retaining walls had been buried by the rubble fill, which had a maximum height of 31 cm. The building measured 9.8 by 4.6m. Two entrances were noted along the west-side wall, one per room. Wall masonry consisted of a double row of crudely dressed stone blocks. The average wall thickness was 61 cm. [Editor’s note: This description of Structure 124 was written by Nielson and Sheldon from the Season 3 survey notes only. Following the survey, Edward Kurjack returned with a separate crew and excavated this structure. Although these excavations have not been reported in detail, a summary statement is given in the Editor’s Appendix to Part 3, this volume.]

Structure 125

Strongly resembling Structure 124 in appearance and manner of construction was Structure 125, a two-room unvaulted building also situated on a rubble-filled platform. The substructure platform for this building measured approximately 15.2 m long and 14.0 m wide. The retaining walls had collapsed and were buried by the rubble fill. The maximum height of the fill was 10 cm. The superstructure measured 9.1 m long by 3.5 m wide. Two entrances along the north-side wall were apparent, one per room, and they opened onto the platform, as did those of Structure 124. Wall masonry was a double row of crudely dressed stone blocks. The average wall thickness was 43 cm, and the maximum height of the wall debris was 20 cm.

STRUCTURES OF COMPLEX N

Complex N was a rather small group of architectural features consisting of a main platform with three unvaulted buildings situated on its surface. The retaining walls of the rubble-filled platform had apparently collapsed and had been buried by the rubble. The platform measured approximately 21.3 m long by 18.3 m wide, and it had a maximum height of 61 cm.

Structure 126

Badly collapsed and disturbed, Structure 126 was recognized by the presence of three connecting wall sections. By extrapolation, these wall fragments were part of a one-room or a two-room unvaulted structure measuring 8.7 m long by 3.8 m wide. No doorways were noted. The wall masonry was a double course of crudely dressed stone blocks.

Structure 127

Structure 127 was a small one-room unvaulted structure, 3 m square. A possible entrance in the north wall was noted. Walls were represented by a double row of crudely dressed stone blocks, averaging 31 cm in thickness. The maximum height of wall debris was 10 cm.

Structure 128

Structure 128 was similar to Structure 127 in appearance and manner of construction. Slightly larger, this building measured 3.0 m long by 3.1 m wide. The wall masonry and measurements were the same as for Structure 127. No entrance was noted.

STRUCTURES OF COMPLEX O

Complex O consisted of two main platforms. One platform had two superstructures, Structure 130 and Structure 131, situated on its surface. The other, Structure 129, had a chultun centrally located on, and penetrating, its surface.
Structure 129

Structure 129 was a square, rubble-filled platform measuring 12.2 m square. The retaining walls had collapsed and no evidence of them remained. In the approximate center of the platform was a well-preserved chultun penetrating the surface and extending into the decomposed bedrock. The interior of the chultun was superficially examined and found to be coated with a blue stucco. The maximum height of the platform debris was 31 cm.

Structure 130

The platform supporting Structures 130 and 131 measured approximately 16.7 m long by 15.2 m wide, and was a maximum of 31 cm in height. Its retaining walls had collapsed and were buried under the stone rubble fill. Structure 130 was a badly collapsed and disturbed unvaulted building. A portion of one wall was noted, indicating that at least two rooms were present. The building measured 9.8 m long by 7.0 m wide. No entrances were located. The wall masonry consisted of a double row of crudely dressed stone blocks. Average wall thickness was 36 cm, and the maximum height of the wall debris was 10 cm.

Structure 131

Structure 131 was a two-room unvaulted structure measuring 9.4 m long by 4.4 m wide, sharing the same substructure platform as Structure 130. Two entrances were present in the south-side wall, one per room. The wall masonry was a double row of crudely dressed stone blocks. Average wall thickness was 46 cm, while the maximum height of the wall debris was 10 cm. A heavy grooved metate was noted near the southwest corner of the building on the outside of the structure.

Structures of Complex P

Complex P consisted of a main platform surmounted by ten superstructures. The main platform was heavily damaged, and was represented by an expanse of 39.5 m of retaining wall fragments, 1.2 m tall at their greatest height. In addition to the stone and earth fill, a partially visible bedrock outcrop formed part of the core of the platform. The artificial fill was removed in one area, in a preliminary way, to better examine this outcrop (Fig. 3.5). The complex was located approximately 240 m from Complex A, the acropolis at the entrance to X-Kukican Cave. Structures 132, 133, 135, 145, and 146 were located off the main platform. Situated to the south and northwest of the main platform, these structures are included in this complex due to their relative proximity.

Structure 132

This was a narrow unvaulted structure resting directly on ground surface with no evidence of a substructure. Located immediately south of the main platform, the building measured 9.7 m long and 3.7 m wide. Although no evidence of interior walls was detected, the overall length of the structure suggests that more than one room was present. Recent disturbances precluded the location of entrances. Walls were made of a double row of unworked stones. The average wall width was 45 cm and the maximum height was 15 cm.

Structure 133

Structure 133, like Structure 132, had no apparent substructure and was located south of the main platform for Complex P. It was badly disturbed, apparently representing a single-room, unvaulted building. Measuring 7.3 m long by 6.5 m wide, the structure had no apparent entrances. The south wall was noted as the logical side for entrances, but it was so thoroughly disturbed as to make the location impossible. Wall masonry consisted of a double row of unworked stones, 45 cm thick. The maximum wall height was 15 cm.

Structure 134

Resembling Structure 133, Structure 134 was a single-room, unvaulted structure resting on the ground surface. Measuring 6.8 m long by 5.5 m wide, this structure had wall masonry identical to the two aforementioned buildings. No entrances were noted, but the south wall was badly disturbed and may have contained one. Average wall thickness was 41 cm, while the maximum height of the wall debris was 15 cm.

Structure 135

Represented by two adjoining wall fragments, Structure 135 was situated on the southern portion of the main platform. Data were too incomplete for further description other than measurements. The wall fragments measured...
12 m and 18 m long respectively, each composed of a single row of unworked stones. Measuring an average of 35 cm thick, these wall fragments may have represented the remains of a platform's retaining walls. The maximum height of the walls was 20 cm.

Structure 136
Structure 136 was a moderate-sized single-room structure situated between Structures 135 and 137. Unvaulted, the structure measured 8.6 m long and 3.6 m wide. The wall masonry consisted of a double row of crudely dressed blocks, with an average thickness of 33 cm and a maximum remaining height of 18 cm. The location of the entrance was undetermined. Five heavy grooved metates were located within the immediate vicinity of the structure.

Structure 137
Structure 137 was a large, two-room unvaulted structure located on the southeastern edge of the platform between Structures 136, 139 and 138 to the east, north and northwest. An interior wall indicated the presence of at least two rooms, but doorways, either in the exterior wall or in the interior dividing wall, could not be detected. The structure measured 8.1 m long by 7.4 m wide. The walls, double rows of roughly finished blocks, averaged 41 cm in width, and had a remaining height of 18 cm at their highest point.

Structure 138
Located on the western edge of the main platform and to the west of Structures 137 and 139 was a narrow structure, measuring 10.7 m long and 4.6 m wide. Although no interior walls could be detected for Structure 138, the overall length of the building suggested that two or more rooms were actually present. The location of doorways could not be determined. The masonry of the walls consisted of double rows of crude, unfaced blocks with an average thickness of 40 cm. The maximum remaining height of the wall was 18 cm.

Structure 139
An unvaulted single-room structure situated to the east of Structure 138, Structure 139 measured 6.1 m long by 3.3 m wide. Both structures were roughly aligned on the southwestern portion of the main platform. The wall masonry consisted of a double row of rough blocks, averaging 33 cm in width with a maximum remaining height of 18 cm. No evidences of entrances or other features were detected.

Structure 140
Represented only by several wall fragments, Structure 140 appeared to have been a large unvaulted building located on the northwestern portion of the main Complex P platform. The collapsed condition of the wall prevented the determination of interior walls, but the overall size of the structure tends to suggest that two or more were present. The structure measured 12.9 m long by 7.6 m wide. The walls were double rows of crudely dressed blocks, about 35 cm wide and standing about 12 cm high. Due to the collapsed condition, the locations of the doorways could not be determined.

Structure 141
Structure 141 rested directly on the surface of the main platform near its approximate center. This was an unvaulted, probably single-room structure about 3.4 m long and 2.8 m wide. The location of entranceways or other architectural features was not possible. The walls averaged about 35 cm in width and about 10 cm in height, consisting of double row block masonry of crude, unfaced stones. [Editor's note: This description of Structure 141 was written by Nielson and Sheldon from the Season 3 survey notes only. Following the survey, Edward Kurjack returned with a separate crew and excavated this structure as an example of a “gravel mound.” Although these excavations have not been reported in detail, summary statements are given in both the Editor’s Appendix to Part 3 and Kurjack’s Introduction to the Research in the Archaeological Zone, this volume.]

Structure 142
Structure 142 was a small, unvaulted structure, which together with Structures 143 and 144, formed a small cluster resting on the surface of the northeast portion of the main platform. The structure was 4.6 m long and 4.1 m wide. The location of the entrance was not detected. The lack of any interior walls suggested that only one room was present. The walls were double row block masonry, with an average width of 35 cm. The maximum height of the wall debris was 12 cm.

Structure 143
Structure 143, situated on the northeast corner of the platform, was represented by four walls in a collapsed condition. The remaining portions indicate that the structure was unvaulted and measured approximately 6.1 m long by 3.8 m wide. No interior walls or doorways were noted. The walls, of double row block masonry, were about 20 cm wide, with a maximum height of 17 cm.

Structure 144
Structure 144, immediately to the northeast of Structures 142 and 143 and on the northeast edge of the main platform, consisted of an irregular circle of stones with an approximate diameter of 2.3 m. The walls were a single row of unworked stones, 25 cm in width and only 7 cm high.

Structure 145
Structure 145 was located 12 m north of the northwest
corner of the main platform, resting directly upon the ground with no indication of a platform base. It appeared to be the remains of a small apsidal house, 3.8 m long by 3.0 m wide. Wall masonry consisted of a single row of rough, unfaced stones with an approximate width of 10 cm and a remaining height of 15 cm. No doorways could be located because of the disturbed condition of the walls. The poor state of preservation also renders its description as an apsidal house questionable.

**Structure 146**

Found in a badly disturbed condition, Structure 146 was represented by two short wall sections and their junction. It was located approximately 25 m west of the main platform. The lack of vault stones and any evidence of interior walls suggested that it was originally a one-room unvaulted structure resting directly upon the ground. The walls were composed of a double row of unworked stones, approximately 25 cm in width and 10 cm in height. No evidence of doorways or other architectural features could be detected.

**STRUCTURES OF COMPLEX Q**

Complex Q illustrates well the nature of architectural clusters found in the Archaeological Zone. Nine buildings assignable to the Pure Florescent period were situated on a stepped main platform. This platform measured 45.4 m long and 26.2 m wide. The northern one-third of the platform was an average of 61 cm above the ground surface, while the southern two-thirds of the platform was an average of 153 cm above the ground. Traces of a stairway leading up from the lower north platform portion were noted in the center of the platform. The stairway was approximately 5.7 m wide, with risers 20.0 cm high and treads 31.0 cm wide. Four, possibly five, steps were present. Two smaller stairways were noted on the eastern side of the higher southern portion of the platform, one between Structure 150 and Structure 155, the other between Structure 155 and Structure 154. Possibly, collapsed portions of the retaining walls of the platform were mistaken for stairs, as neither of these locations is logical for steps. Portions of the platform’s retaining walls were visible on all sides. Block masonry consisting of a double row of large well-shaped stone blocks contained the stone rubble fill of the platform.

**Structure 147**

Structure 147 was a two-room unvaulted building located at the northwest corner of the main platform, measuring 11.6 m long by 4.9 m wide. A small room was later added at the northwest corner. This extra room utilized part of the north end wall of Structure 147 to complete itself. Measuring 2.4 m long by 2.1 m wide, this room had no visible entrances. Two entrances, one per room, were noted as centered along the west wall of Structure 147. The wall masonry for both Structure 147 and the subsequent room addition consisted of a double row of rectangular stone blocks with a slight concrete core. The average wall thickness for the small room was 25 cm, and the average thickness for Structure 147’s walls was 61 cm. The maximum height of wall debris was 25 cm.

**Structure 148**

Structure 148 was a one-room rectangular building located almost directly in front of the steps leading up to the higher southern portion of the main platform. The structure measured 5.7 m long and 4.5 m wide. A single entrance was noted, centered in the western end wall. Wall masonry consisted of a single row of roughly shaped rectangular stones averaging 20 cm wide. The maximum height of wall debris was 25 cm.

**Structure 149**

Situated on the upper portion of the main platform with Structures 150-155, Structure 149 was a two-room, unvaulted building. The building measured 10.6 m long by 4.6 m wide. No entrances were observed, although the west-side wall was badly collapsed and may have possessed doorways. It is unusual that of the structures located along the edge of the main platform in Complex Q, apparently only Structure 153 had doorways opening onto the center platform area. The others appeared to have doors opening only at the edge of the platform onto a 2 m drop to the ground’s surface. The field workers may have overlooked doors on the inside walls, or possibly the occupants had some as yet unknown purpose for this seemingly illogical placement. The wall masonry was a double row of well-shaped rectangular blocks with a slight concrete core. Average wall thickness was 53 cm, while the maximum height of the remaining wall debris was 25 cm.

**Structure 150**

Structure 150 was a four-room rectangular building measuring 14.8 m long by 3.6 m wide. No entrances were noted, but the eastern-side wall was badly collapsed and may have possessed such features. The wall masonry was a double row of rectangular stone blocks, well dressed and set in a slight concrete core. Average wall thickness was 46 cm, while the maximum height of the wall debris was 20 cm.

**Structure 151**

Structure 151 was the only vaulted structure in this complex, situated across the center portion of the upper platform. Both side walls were covered with debris from the collapsed vault, negating the location of doorways. It was assumed that at least one, and possibly two doors were originally present for each of the three rooms. Boot-shaped vault stones were noted, and the lower wall masonry consisted of rectangular veneer stones with a well-developed tenon set in a thick concrete core. The
building measured 17.2 m long by 6.4 m wide. The average wall thickness was 56.0 cm, and maximum height of wall debris was 1.8 m. No decorative stone elements were noted on the surface of the structure, although such facade elements, as well as cornice moldings are probably buried under the collapsed structure debris. A single heavy grooved metate was found on the structure's surface.

**Structure 152**

Structure 152 was a rectangular unvaulted structure of probably three rooms. Measuring 14.9 m long by 3.3 m wide, the northwestern portion of the building was badly collapsed. No doorways were noted, although it is possible they were located along the collapsed western-side wall. The wall masonry consisted of a single row of square stone blocks averaging 23 cm thick. A few scattered veneer stones were found on the structure's surface, but these are presumed to have originated from Structure 151. The maximum height of the wall debris was 13 cm. A fragment of a heavy grooved metate was found associated with the structure.

**Structure 153**

Structure 153 was a two-room, unvaulted building located behind Structure 151 at the south edge of the main platform. The structure measured 7.6 m long by 4.9 m wide. A single doorway was noted in the north-side wall of the eastern room, and it is assumed that another door in the same relative position was present in the collapsed section of the north wall of the west room. The wall masonry consisted of a single row of rectangular stone blocks averaging 31 cm thick. The maximum wall height was 25 cm. The doorway observed for the eastern room was 61 cm wide.

**Structure 154**

Located at the southeastern corner of the main platform, Structure 154 was a single-room, unvaulted structure. Measuring 5.9 m long by 4.3 m wide, this building had a single entrance at the western end wall. This doorway was 61 cm wide. The wall masonry consisted of a single row of square stone blocks averaging 43 cm thick. The maximum wall height was 25 cm.

**Structure 155**

Structure 155 was a badly collapsed, unvaulted structure of probably two rooms. Measuring 6.7 m long by 3.2 m wide, the building had no evident entrances. Wall masonry consisted of a single row of large rectangular blocks averaging 31 cm thick. The maximum wall height was 25 cm.

**STRUCTURES OF COMPLEX R**

Complex R consisted of three vaulted structures grouped in a plaza arrangement and associated with two chultunes. One of these structures, Structure 158, rested on a small platform substructure, while the remaining two were apparently built on the ground surface. On the basis of veneer stones and facade elements, this complex can be assigned to the Pure Florescent period.

**Structure 158**

Structure 158 was a two-room vaulted building resting on a substructure platform. The platform measured 15.5 m long by 5.9 m wide, its average height being 32.0 cm. A single row of large rectangular stone blocks, crudely shaped, formed the retaining walls. The average measurements for these wall stones were 61 cm long, 31 cm wide and 31 cm thick. The building itself measured 9.3 m long by 5.2 m wide. The side walls were badly collapsed, but one doorway was noted in the south wall of the eastern room. Presumably at least one door per room, possibly two opposing doors per room, were originally present. The wall masonry consisted of tenoned veneer stones set in a thick concrete core. Boot-shaped vault stones were present. The average wall thickness was 51 cm, while the maximum height of structure debris was 122 cm. The single observed entrance measured 74 cm wide. A carved stone column was observed, buried under debris at the northeast corner of the structure, as was another in the west end wall.

**Structure 159**

Structure 159 was a three-room vaulted structure having no substructure, measuring 16.6 m long by 3.5 m wide. The structure was badly collapsed, with no entrances noted. The eastern-side wall would appear to be a logical location for entrances, however. Wall masonry was veneered concrete, and boot-shaped vault stones were present. Average wall thickness was 61.0 cm and the maximum height of the structure was 1.7 m. Several small, carved stone columns were noted among the structure's debris.

**Structure 160**

Structure 160 was a three-room vaulted structure measuring 16.4 m long by 4.1 m wide. Because of the collapsed condition of the building, no entrances were located. The wall masonry consisted of veneered concrete. Boot-shaped vault stones were noted. The average wall thickness was 92.0 cm, while the maximum height of the collapsed structure was 2.2 m. Scattered facade elements and carved stone columns were noted on the structure's surface. Fragments of at least four heavy grooved metates were located approximately 7.6 m south of the east end wall of the structure. [Editor’s note: This description of Structure 160 was written by Nielson and Sheldon from the Season 3 survey notes only. Following the survey, Edward Kurjack returned with a separate crew and at least partially excavated this structure. Although these excavations have not been reported in detail, a summary statement is given in the Editor’s Appendix to Part 3, this volume.]
STRUCTURES NOT ASSOCIATED WITH PLAZA COMPLEXES

Structure 121
Structure 121 was a small rectangular stone platform or structure floor located approximately 25 m northeast of Complex K. It may well have been associated with that complex, thus its placement here as an unassociated structure is tentative. The platform measured 5.0 m long by 2.4 m wide. It had a maximum height of 8 cm. The walls were composed of a single row of unworked stones averaging 18 cm thick. The interior fill was composed of crushed limestone. If this structure does represent a house floor of some type, no entrances were preserved.

Structure 156
Structure 156 was a large stone platform with no evidence of a superstructure. The platform measured 12.5 m long by 7.0 m wide with a maximum height of 1.2 m. Retaining walls consisted of a single row of rectangular stone blocks averaging 28 cm thick. The fill of the platform was composed of crushed limestone.

Structure 157
Located approximately 25 m northeast of Structure 156 was Structure 157. This was a wall of crudely shaped stone blocks enclosing a collapsed chultun. The wall, measuring 4 m in diameter, was composed of a single row of stones with a maximum height of 13 cm.

SPECIAL FEATURES
During the 1969 field season at the Archaeological Zone of X-Kukican, the three participating University of Alabama undergraduate students (Jenkins, Curren, and Rainey) conducted test excavations of Sacbe 1 as a special research project for the class, Anth-119, in which they were enrolled. This excavation was in the area of Sacbe 1 showing no surface evidence (see Part 1, The Sacbe, and the Frontispiece). Also, at this time, investigations were made to determine three things: (a) whether Sacbe 1 extended beyond Complex A to the southwest; (b) whether Sacbe 1 extended to the northeast of Complex B; and (c) to determine the average widths of Sacbe 1, Sacbe 2 and Sacbe 3, by taking width measurements at selected points.

Test Excavation of Sacbe 1
A trench 2 m wide was excavated across an area of Sacbe 1, 10 m northeast of the point at which the sacbe appeared to end. It was believed initially that the sacbe had been disturbed at this point, and had originally continued to a junction with Complex B. Excavations were conducted in arbitrary 10 centimeter levels until the retaining walls and rubble fill of the sacbe were reached. At that point the stones were cleaned of soil and vertical profile cuts were made on both sides of the eastern retaining wall (Figs. 3.6, 3.7). The sacbe was found to be intact but buried under a thin layer of red soil approximately 17 cm thick.

Profile sections showed the center fill of the sacbe to be composed of two strata. The upper stratum was paved with a compact layer of small fragments of crushed limestone. Below this was a second, more loosely scattered stratum of larger stone fragments in red soil.

The retaining walls were found to be made of a single row of unworked stones, one course high. Spaces between the stones were filled or chinked with smaller unworked stones. A few large stones were found in the upper portion of the center fill, but these were exceptional. It was concluded by the students that the red soil overburden...
was the result of soil deposition during the rainy season, rather than the result of milpa activities. This excavation demonstrated that Sacbe 1 did in fact extend in the manner previously supposed and depicted on the base map (Frontispiece).

Another excavation was made at the point of the assumed junction of Sacbe 1 with Complex B. Here, little trace was located of the sacbe, save for a few scattered stones and fragments of the retaining wall. Apparently the sacbe had been subjected to extreme disturbance at this point.

**Searches for Sacbe 1 Extensions**

Extensive searches on foot were conducted by the students in order to determine if Sacbe 1 extended either to the northeast or southwest beyond complexes A or B. No further traces of Sacbe 1 were found in either of these directions, although it is possible that heavy vegetation or soil deposition has obscured the sacbe at these places.

**Average Width of Sacbeob at X-Kukican**

Width measurements were taken at selected points for each of the three sacbeob in the Archaeological Zone of X-Kukican. These checks were made at the points, which showed the best preservation of the original width. The measurements taken included the retaining wall widths as well as that of the center fill. Four overall width measurements, intended to be as precise as possible, were made along Sacbe 1. The average of these was 6.78 m.

Three width measurements were obtained along Sacbe 2. These yielded an average width of 3.93 m.

Only two width measurements were obtained from Sacbe 3. These yielded an average width of 4.95 m. Each of these figures differs significantly, indicating that no standard width was employed for sacbeob at X-Kukican.

**SUMMARY OF THE THIRD FIELD SEASON**

The third field season at the Archaeological Zone of X-Kukican has added what the University of Alabama feels to be a significant contribution to knowledge of prehistoric Maya architecture. The mapping program has enabled the compilation of a topographic map covering a sizeable portion of the Archaeological Zone. This area has now been investigated sufficiently to be considered a valid representation of the archaeological remains to be found there. The 1967-1968 field season (Part 2) covered much of this same area, but it was felt that many small structures may have been overlooked. This caution was inspired by considering the different spatial pattern of ruins at X-Kukican as compared to that represented at the important Maya site of Dzibilchaltun (Scheffler et al., 1963). In the final report of the 1967-1968 field season at X-Kukican (Part 2, “Significance of the Mapping Program”) it was suggested that this difference might be accounted for by the presence of large extended families living in plaza complexes at X-Kukican versus nuclear families occupying individual structures at Dzibilchaltun (Kurjack et al., 1968).

In order to support this assumption, it was judged necessary to extensively examine once again the area already included on the topographic map. This resurvey was in line with the University of Alabama’s first priority of accurately mapping the Archaeological Zone, laying the groundwork for an eventual program of extensive archaeological research at X-Kukican. It was felt that the ultimate completion of the mapping program will more than prove its worth in the study of Maya archaeology. The current field season has further demonstrated the high research potential of the Archaeological Zone of X-Kukican.

**FUTURE RESEARCH**

The authors propose that during the next field season at the Archaeological Zone of X-Kukican, the mapping program should be continued in order to enlarge the area already investigated. At that time, extensive examination should be conducted of the three caves discovered during the 1967-1968 field season (Part 2, “Bluff Shelters and Caves”), in conjunction with an exploration in this area for further caves.

The significance of the mapping is to be stressed, as it provides the basis and primary data for future settlement and distributional studies. The authors believe that the mapping program, though an arduous task in the heavily vegetated Puuc Hills region, should be completed before intensive study of individual structures is attempted. The mass of pre-Columbian architectural data present in the ruins of X-Kukican can then be more productively sampled.

Lest the importance of the cave and bluff shelter investigations be underestimated, it should be emphasized that stratified deposits are present in these underground caverns and shelters, whereas in contrast, accumulations of cultural deposits on the surface are rare. Thus the possibility that the data necessary for the formulation of ceramic and other artifact sequences are to be found within these cave and shelter deposits is reason enough for their extensive examination.
APPENDIX: STRUCTURES EXCAVATED BY KURJACK DURING THE 1969 SEASON

In the text above, the editor has added references to those structures described during the surface survey that were revisited by Kurjack and excavated to varying extents, using a separate local crew, during the course of the final 1969 season. The following list of excavated structures, compiled by the editor of this volume, is based on the notes and photographs currently available; these admittedly are incomplete. Nonetheless, the following summary descriptions are included in order to document this important aspect of the project in at least an initial way.

Structure 28
A three-room building with basal dimensions of 14.8 by 4.3 m, isolated and built at ground level, first discovered during Season 2 in the area between Complex C and Sacbe 1 (Fig. 3.8; for the plan view see Fig. K.3 in Kurjack’s Introduction). It was defined by a surviving basal course of masonry enclosing floors of gravel covered by a thin layer of plaster. Wall foundations may have been of dry masonry or masonry fitted with mud mortar in the gaps between the blocks, but the amount of debris suggests that these wall foundations could not have been very high. All rooms featured doors opening in the same direction. The north room was a later addition to what was originally a two-room structure. Presumably the roof was thatched. Pottery counts indicate a functional differentiation of rooms.

Structure 80
A three-room building with basal dimensions of approximately 8.3 by 3.0 m, isolated just west of Sacbe 1 (Fig. 3.9). It is incorrectly mapped as a two-room building on the master site map based on the initial survey notes. The structure sits on one side of a much larger, low platform with retaining walls, which was uncovered (Fig. 3.10). The building foundations were of stone blocks laid two courses thick with mud mortar in the gaps, enclosing marl-over-gravel floors. The rest of the superstructure was presumably wattle-and-daub, with a thatched roof.

Structures 84 and 85
These two structures, which shared a common
quadrilateral platform, comprise Complex F on the master site map, just west of Sacbe 1 and opposite Structure 28. Of these, Structure 84 was a Pure Florescent vaulted building with an L-shaped plan (Fig. 3.11). There were three rooms, 12.0 m by 3.2 m, 2.9 m by 3.2 m, and 4.9 m by 2.9 m in plan. The walls were intact up to three stone courses high in places. A large doorway existed in the east façade of the west wing, bordered by two monolithic jamb stones, between which were two cylindrical columns supporting stone lintels. This doorway had fallen inward. Abundant samples of artifact material were collected from the excavation. The smaller Structure 85 consisted of a rectangular masonry foundation 8.3 by 3.4 m in plan, showing at least two rooms.
Structures 113 and 114

These are two vaulted, Pure Florescent structures sharing a common platform, but somewhat isolated north of Complex J. (There is evidently a labeling error, as these are shown on the master site plan as Structures 112 and 113. On the master map, Structure 114 is part of Complex K and is not near Structure 113.) Both structures possessed three rooms. The middle room of Structure 113 had a doorway facing the plaza, in the middle of which was a single cylindrical column supporting stone lintels. The middle room of Structure 114 possessed three doors facing the plaza, whereas the two outlying rooms had doorways facing away from the plaza. In his Introduction, Kurjack gives a plan view (Fig. K.2), and discusses how some rooms here were built to facilitate communication, while others were built for privacy.

Structure 124

This was a two-room rectangular structure on its own quadrilateral platform, the latter measuring 16.8 m by 14.6 m with a shallow fill of gravel and earth. This, together with a similar structure and platform nearby, comprise Complex M on the master site map. The plan of Structure 124 measured 9.8 m by 4.6 m with wall masonry consisting of a double row of crudely dressed stone blocks. A human burial was found beneath the floor of the south room. Numerous lots of artifacts including abundant ceramics were recovered from the excavations.

Structure 141

This was a “gravel mound” of the kind extensively discussed by Kurjack in his Introduction (see Fig. K.1). The example was from Complex P in the “milpa area” east of Sacbe 1 near the Complex A acropolis. The mound was cleared and partially excavated, looking for evidence of retaining walls or internal structure. Although none was found, the area had been extensively disturbed, and Kurjack remained convinced of this sort of structure as evidence of the foundations of wattle-and-daub houses.

Structure 160

This collapsed three-room Pure Florescent vaulted building, approximately 16.4 m by 4.1 m in plan, was the northernmost structure in Complex R, east of Complex D (Fig. 3.12). Its wall masonry was veneered concrete, and boot-shaped vault stones were noted in the debris. The ruin was cleared and mapped, with some 250 of its wall stones measured in three dimensions.
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NOTES

Dzibilchaltun is a major archaeological ruin situated in the northwest corner of the Yucatán peninsula approximately 20 km south of the Gulf of Mexico, some 10 km north of Merida (Andrews and Andrews, 1980; Kurjack, 1974).

The term "apsidal" refers to having straight sides and rounded ends.

In the second and third seasons of work, herein reported as Parts 2 and 3, more expansive mapping and test excavations revealed that this northern group was indeed connected by sacbe to the acropolis group, resulting in a broader definition of the Archaeological Zone of X-Kukican. Beginning with Season 2, the original acropolis reported in Season 1 by Cottier was renamed Complex A, and its connecting sacbe as Sacbe 1. The ruins called X'tancia-Kaa in Part 1 were also renamed; the core structures of this northern group were thenceforth called Complexes B-D, as shown in the Frontispiece.

This carved jamb stone was further investigated during Season 2. It is described and illustrated as Monument 3, Complex D-3 in Part 2.

"Actun is Maya for "cave."

"Spalling" refers to the insertion of small spalls of rock to fill gaps between stone blocks in masonry construction.

The acropolis is labeled Complex A in the Frontispiece and its adjoining sacbe is labeled Sacbe 1. See note 2 regarding the revised nomenclature adopted during Season 2.

See note 3. At its northern end, Sacbe 1 terminates at Complex B, using the terminology adopted during Season 2.

A chultun is a below-ground cistern, circular in plan.

See note 3 regarding this terminology.

Figs. 1.47C, D, E.

Figs. 1.47B and 1.49A.

Copal is an incense made from aromatic tree resins, widely used in Middle America.

Indicating the party of J. Manson Valentine. See the Editor’s Preface and Part 1, Background [editor].

Figs. 1.44R, S.

Fig. 1.39M.

Fig. 1.42A-D.

Fig. 1.44A-C.

Fig. 1.39D.

Fig. 1.44O.

Fig. 1.45H.

Fig. 1.40F, left and center.

Fig. 1.40F, right.

Fig. 1.45E.

Fig. 1.42E.

Fig. 1.44D.

Fig. 1.44E.

Fig. 1.45D.

Figs. 1.44K, L.

Fig. 1.39J.

Fig. 1.48D.

Fig. 1.49G.

Fig. 1.48B, F.

Fig. 1.40G.

Fig. 1.45B.

Fig. 1.43C.

Fig. 1.49E.

Figs. 1.44M, N.

Similar to that shown in Fig. 1.44F.

No more comprehensive report on the ceramics was produced [editor].

Here, in the report of the second season, the various building complexes are given letter designations for the first time as the survey expanded northward from the acropolis mapped during the first season (Complex A).

Placed that way intentionally during Season 1, according to Part 1 [editor].
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