Architecture, Restoration, and Imaging of the Maya Cities of UXMAL, KABAH, SAYIL, AND LABNÁ The Puuc Region, Yucatán, México

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Annotated Bibliography
Maya Architecture

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This is not a general bibliography on Maya Architecture. This section lists publications on Maya Architecture that include attention to the Puuc Region. Publications on individual Puuc sites are usually listed only in their own sections of this subject matter bibliography. Publications by and about early explorers and scholars are listed in that section, even though they sometimes deal extensively with Puuc architecture.

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Abrams, Elliot Marc
How the Maya Built Their World: Energetics and Ancient Architecture. Austin: University of Texas Press, 1994.

> Based on a study of the residential architecture at Copán, the author attempts to demonstrate the usefulness of "architectural energetics" in understanding ancient civilizations. As the author writes: "By converting buildings into the energy and labor expended in their construction, a series of reconstructions concerning social power, labor organization, and economics can be generated." Thus, the book includes 12 tables with titles such as "Operations, Tasks, and Costs per Task in Construction", "Cumulative Energy Cost per Major Construction Episode", and Hierarchic Social structure based on Residential Cost". The few conclusions reached regarding the Maya at Copån do not seem to need the elaborate structure of the book. For example, the first conclusion states that "in addition to their greater symbolic value, improved

residential structures provided their occupants with an enhanced biopsychological quality of life, particularly in terms of health and comfort. Commoners viewing these elite structure saw more than symbols of power; they saw better housing and better living conditions" (p.127). Although no new ideas are described, the book is useful in reviewing some of the details of construction, division of labor, etc.

Adams, R. E. W., and Jane J. Adams

"Volumetric and Stylistic Reassessment of Classic Maya Sites in the Peten, Rio Bec, Chenes, and Puuc Hills". *Ancient Mesoamerica*, Vol. 14, No. 1 (2003): 139-150.

Andrews. E. Wyllys V

"Some comments on Puuc Architecture of the Northern Yucatan Peninsula". *The Puuc: New Perspectives*: *Papers Presented at the Puuc Symposium, Central College, May 1977,* ed. Lawrence Mills: 1-17. Scholarly Studies in the Liberal Arts, Vol.1. Pella, Iowa: Central College, 1979.

Andrews first calls attention to the nature of recent research in the Puuc region. He writes that Puuc architecture has by then been extensively studied "with regard to style, distribution in space and time, construction techniques, formal arrangements, and possible external relationships" He adds that "studies have usually emphasized the architecture itself and its consolidation or restoration, rather than the broad stratigraphic excavations, settlement pattern studies, detailed analysis of artifact classes, and other facets of the prehistoric record that are usually incorporated in most modern archaeological field work". His article is prophetic in calling for the need for "a settlement pattern study of one or more of the large sites that seem to pertain wholly or at least in large part to the period of the Puuc architectural style" (p. 1).

He then describes the ways in which the Puuc architectural style and technique of the Pure Florescent or Terminal Classic period differ from those of neighboring regions. Here he corrects a common error in publications by authors not familiar the Puuc architecture, noting that Puuc vaults are not corbelled and that this change in construction technique [we could add here Puuc improvement in the quality of concrete] permitted wider rooms. Importantly, he suggests that this may indicate that the width of Maya rooms had been constrained by their knowledge of structure rather than by convention.

The body of the article examines in detail the various types of evidence for the dating of Puuc style architecture and the relationship of Puuc culture to the culture of related regions. This is an exceptionally informed, critical review, frequently emphasizing conflicting or insufficient evidence. Two especially important questions reviewed in the body of the article are the origins of the Puuc style and the relationship of Puuc sites to Chichen Itza. Andrews concludes with a section on Coluba, a site about 85 km northeast of Chichen Itza, which he believes is already providing important evidence about the Puuc-Toltec relationship. Illustrating his points with 11 excellent detail photographs of Coluba, Andrews points out many typically Puuc features. The strong similarity between one long, largely intact Puuc range-type structure at Coluba and the Nunnery at Uxmal argues strongly, in his view, that they are contemporary.

Andrews, E. Wyllys, V, and Anthony P. Andrews
"Northern Maya Lowlands". *The Oxford Encyclopedia of Mesoamerican Cultures: The Civilizations of Mexico and Central America.* Vol. 1: 378-385, ed. David Carrasco. 3 vols. Oxford University Press, 2001.

This is the best brief, up-to-date introduction to the Northern Maya Lowlands. In their first paragraph, the authors note that "there are several geographic and cultural subdivisions, including the Northern Plains, the East Coast, and, north to south, the Puuc, Chenes, and Rio Bec, the last three of which are defined largely by architectural styles" (p. 378). They trace the history of the Northern Maya Lowlands through 5 historical stages. They write that "the most important difference in the timing of the decline between the Maya north and south is not when it ended but when it began – or became visible in the archaeological record' . . . The rough contemporaneity of the decay of elite centers and complex political organization in both the Maya north and south is strong evidence that the same stresses were present in both areas" (p. 382).

Along the way, the authors describe the characteristics of Northern lowland architecture, with attention to the Puuc architectural style. Regarding the importance of the Puuc region in the Northern Lowlands, they write that the intensive horticulture in the deep, rich soil of the Puuc region must have served to provide food for a large area of the Northern Lowlands, in most of which agriculture was difficult. They also write that "the Puuc architectural style . . . spread north and east . . . across much of the Northern Lowlands in the last century of so of the Classic period . . . [lending] unity to areas that had become increasingly regionalized" (p. 381).

Andrews, George F.
"Architectural Survey of the Rio Bec, Chenes, and Puuc Regions: Progress and Problems". *Hidden among the Hills: Maya Archaeology of the Northwest Yucatan Peninsula*, *Acta Mesoamericana*. Vol.7, ed. Hanns J. Prem: 247-288. First Maler Symposium, Bonn. Möckmühl, Germany: Verlag von Flemming, 1994 (2nd ed. 1999).

The result of years of careful study of the architecture of the Rio Bec, Chenes, and Puuc regions, this is an extraordinarily detailed and systematic report of the basic architectural, construction, and decorative features. Andrews first review previous research on the subject. He provides maps identifying the areas studied with their archaeological sites. He notes that "the density of sites for the Puuc region as a whole exceeds the density in any other lowland Maya region" and that the Puuc heartland (around Kabah, Sayil, and Labná) was the most densely populated of all (p. 253). Andrews then provides a chart of structural types and 2 charts of individual architectural features, divided by the regions listed above. He divides the Puuc into early and late to facilitate analysis of chronological change. This is a unique list of 34 individual architectural features, such as "large, ¾ round corner columns", "stone lintels over doorways", etc.

Based on this comparative information Andrews concludes that (p. 260):
(1). "Each region has one or more architectural forms which are unique to that region." "In the Puuc region we find both free-standing portal vaults and portal vaults through buildings, as well as large palace structures in which a series of rooms are arranged

around all four sides of a solid central core, and large (range)-type buildings with 10 or more rooms."
(2). "Some regions have decorative features which are essential unique." "In the Puuc region, both Mosaic and Late Uxmal style buildings carry mosaic type, geometric façade sculpture of a kind that is not found in Chenes or Rio Bec buildings."
(3). "Some building forms . . . occur frequently in all four regions under consideration."
(4). Where "features . . . occur in varying numbers in all four regions . . . these overlaps suggest trends of developmental sequence."
(5). "Some indication of the direction of flow of influence (or lack of flow) can be gleaned from the charts."
(6). "The charts emphasize the great differences between the diagnostic features of the three early Puuc styles and those of the late styles. The differences are so great that the change appears to be the result of influences from outside the Puuc region itself. While many of the basic features of the classic Puuc Colonnette and Mosaic styles appear to be derived from Chenes and Rio Bec models, the Late Uxmal style shows influences which appear to come from either Central Mexico or Chichen Itza."

Andrews also concludes that "This level of consistency suggests an accompanying social order and political structure, at a regional scale, with the capacity of determining what is built, as well as where and how it is built." He writes that the data also "suggests that there is a south to north stylistic sequence" among the regions in his study. He specifies a number of current problems in understanding the chronological and regional relationships among these zones and between these zones and other Maya regions. Andrews provides 25 pages of lists identifying basic features of regional and period styles for the regions studied. The final list describes 12 "Basic Architectural, Construction, and Decorative Features of Late Uxmal Style" (p. 287).

Andrews, George F.
Architecture of the Puuc Region and Northern Plains Areas. Vol. 1 of *Pyramids and Palaces, Monsters and Masks: The Golden Age of Maya Architecture*. *The Collected Works of George F. Andrews* (3 vols.). Lancaster, CA: Labyrinthos, 1995.

For any study of Puuc Region architecture, this is one of the essential books. It contains 7 papers by George Andrews, written between 1982 and 1993, arranged largely in chronological order. Approximately half of the 350 pages are devoted to Andrews' informative photographs, line drawings, and diagrammatic maps. Given the quality of the author's photographs, it is unfortunate that they are here reproduced so weakly, sacrificing much of the clarity and detail of the architecture. On the other hand, the author's important line drawings come through clearly. These include many diagrams of entire facades with overall outlines and primary shapes, knowledgeably reconstructed. These papers demonstrate how extensive on-site observations, carefully recorded and compared, lead to important architectural groupings and distinctions, allowing more complex and more convincing hypotheses regarding chronology, relationships among cities and districts, and nature of culture and society.

Chapter 1, "The Puuc Region and Architectural Styles: A Reassessment". At 131 pages, this is the longest paper in the book. Andrews distinguishes 7 styles, which he discusses in chronological order: Early Oxkintok Style, Proto-Puuc Style, Early Puuc

Style, Classic Puuc Architectural Styles, Mosaic Style, Late Uxmal Style, and Intermediate Style (non-conforming buiildings). The architectural data presented leads Andrews to several tentative conclusions, some of which significantly revise and extend prevous attempts to understand Puuc architecture, affecting origins, dating, influences, and relations with adjacent regions. There is an important 14-page appendix on 4 phases of Puuc construction technology.

Chapter 2, “Early Puuc Architecture: Buildings with ‘Broken’ Medial Moldings”, is a 28 page paper on one architectural detail found almost entirely on early Puuc buildngs: medial moldings that rise above doorways. These include some buildings with roofcombs and some range-type buildings. Andrews also discusses some of the unusual geometric details used. In one of his few interpretive statements regarding visual effects, Andrews writes: “the broken medial moldings are extremely effective archiectural devices in terms of drawing attention to the doorways below, indicating that the rooms behind had some special significance beyond that associated wth any adjacent rooms” (p. 159).

Chapter 3, “Architectural Survey of the Puuc Archaeological Region: 1984 Field Season Preliminary Report”. This 7-page paper reports on the study of 66 sites or parts of sites investigated in 1984. As an addendum, the author describes “10 to 12 archaeological site . . . where important or unique examples of Puuc architecture are in imminent danger of immediate collapse “ (p. 166).

Chapter 4, “Classic Puuc Mosaic Style Architecture and Geometric Masks”. This is a fascinating 29-page description of the decorative motifs employed in the most famous Puuc style, with special attention to geometric Masks. Andrews describes the various mask types, based on 19 examples found at 15 different sites. He notes the flexibility of the basic mask form and that the most simplified, geometric masks “have the advantage that they can be elongated or shortened to fill the available space” (p. 196).

Chapter 5, “Ranking Puuc Sites”. Andrews reviews the bases on which previous experts have raked the importance of Puuc archaeological sites and proposes, with explanations, a revised series of bases for ranking. One-third of this 38-page paper consists of lists of some 170 sites in the Puuc “heartland”, listed under categories such as “Sites with large pyramidal temples” or “Sites with small ‘Palace’ buildings”. Rank 1 consists of only Oxkintok and Uxmal. A special category, Rank 1a, consist only of Kabah. Rank 2 consists of 10 sites including Sayil. Rank 3 consists of 18 sites including Labná. Ranks 4, 5, and 6 include some 17 lesser sites. There are 3 important pages of conclusions resulting from this study, regarding such things as hierarchy of residential types and political structure within the Puuc.

Chapter 6, “Architecture in the Northern Plains Areas”. Andrews first distinguishes three physiographic subdivisions of the Northern Plains: “Coastal Beach and Supra Zone”, “Northwestern Coastal Plain”, and “Northeastern Coastal Plain”. Reviewing previous publications dealing with this area, Andrews proposes and describes the following five periods: “Early Period I (Early Classic Period)”, Early Period II) Late Classic Period)”, “Pure Florescent Period (Terminal Classic Period)”, Modified Florescent Period”, and “Decadent Period (Late Postclassic Period)”. He deals

separately with radially symmetrical pyramids and megalithic architecture. These are followed by a section comparing Puuc and Pure Florescent Architecture, in which he makes important distinctions among types that have often been treated together. In a final section on Culture Periods and Culture Areas, Andrews again makes distinctions among areas that he argues have too often been homogenized.

Chapter 7, "Architecture at Chichen Itza: Cultural Spheres and regional Styles", deals primarily with Chichen Itza, but approximately half of the chapter takes up "Regional Cultural Spheres", "Maya-Chichen vs. Puuc Architecture", and "The Chichen Itza-Uxmal Connection". In both chapter 6 and 7, Andrews, successfully it seems to me, draws important distinctions between Puuc architecture the architecture of the northwestern and north-central plains areas.

"Summary". In his summary, Andrews points out several of the important conclusions from his study. Most importantly, he draws an important distinction between an earlier and a later group of building in the Puuc region, based on style and constructions technology. He dates the change about A.D. 830, accepting a short transitional period just proceeding. He write that "the traditional image of a single, coherent classic style as delineating the entire Puuc architectural scene is clearly at odds with the data now available" (p. 111). He writes that "two distinctly different construction technologies were employed in Puuc architecture. . . These two generic systems are separated in time by a transitional construction phase that coincides with the Early Puuc architectural style" (p. 104). Andrews also writes: "The marked differences between the three earlier Puuc styles and the later classic styles is so great that the change must be the result of influences emanating from external sources" (p. 104).

Appendix I: "Puuc Construction Technology—Early to Late". In an appendix, Andrews describes the different construction technologies for each of his building phases, with diagrams for each. Every distinction is important, but the most definitive again is the change from Early Puuc to Classic Puuc construction technology. He describes the Early Puuc system as "block wall and slab vaults" and the Classic Puuc system as "concrete walls faced with small, squared blocks and concrete vaults faced with wedge-shaped stones tenoned into the concrete behind" (p. 113). Quite properly, he objects to the frequent description of Classic Puuc vaults as "veneer-over-concrete", whereas "the outer wall facing stones . . . are completely integrated with the wall hearting and can be thought of as a kind of permanent "formwork" that retains the concrete core while it hardens" (p. 131). Unfortunately, like others, Andrews does not provide a convincing description of the way the impressive Classic and late Classic Puuc vaults were constructed.

Andrews, George F.
"Arquitectura maya". *Arqueología Mexicana*. México: INAH-Raíces, Vol. II, No.11 (Jan.-Feb. 1995): 4-15.

Andrews, George F.
"Classic Puuc Mosaic Style Architecture and Geometric Masks". *Memorias del Primer Coloquio Internacional de Mayistas* (5-10 August 1985), ed. Mercedes de la Garza, et al.

Instituto de Investigaciones Filológicas, Centro de Estudios Mayas: 403-426. México, D.F.: Universidad Nicaional Autónoma de México, 1987.

A fascinating description of the varying forms of masks in Classic Puuc mosaic architecture. The author's thesis is that "the geometric masks . . . were derived from the typical long-nosed mask panel through the process of simplification, elimination and substitution" (p.404). Andrews describes a progression of 18 buildings carrying geometric mask panels (including one each from Uxmal and Kabah and three from Labná) from the most recognizable to the most geometric and most variant. He notes that it would be convenient if these indicated a chronological development but that the existence of "both long-nosed and geometric masks . . . on the same building [demonstrates] that both forms are contemporary" (p.425). He indicates that "the limited geographical distribution of geometric masks does suggest special political or family ties among the elite groups controlling these sites" (p.425). The clarity of presentation, writing and illustration is exemplary.

In addition to providing a schema for analyzing and understanding these mask forms, Andrews notes which designs are most "effective" and "elegant," not the type of statement anthropologists usually allow themselves. He even expresses one clear, though widely shared, value judgment: "the main façade of the Codz-poop at Kabah . . . has merely been covered with a kind of wallpaper; the repetitive [sic.] pattern may be decorative but the message is lost" (p.425).

Andrews, George F.
Los Estilos Arquitectónicos del Puuc: Una Nueva Apreciación. Colección Cientifica. Serie Aqueologiá. México, F.D.: Instituto Nacional de Antropología e Historia (INAH), 1986.

Andrews, George F.
Maya Cities: Placemaking and Urbanization. Norman: University of Oklahoma Press, 1975.

This is an extensive, pioneering analysis of Maya civic planning, of the "spatial concepts evident in the positioning and siting of Maya buildings and building groupings, and in the planning and physical organization of the 'city' or 'ceremonial center' as a whole" (p.4). Along the way, Andrews relates these spatial concepts to characteristics of the society. Note, for instance, his comparison of Uxmal and Kabah: "The essential difference between [Kabah and Uxmal] lies in the degree to which large-scale space-ordering ideas are present. Uxmal exhibits a clear visual order which is based on formal geometric configurations at the largest possible scale, while Kabah seems disjointed and no central organizing concept is observable. On this basis, Uxmal can be assigned a dominant role in relation to Kabah only to the extent that this large-scale ordering is indicative of a more highly organizing power group at work" (p.327).

The grey-scale photographs, many taken by the author between 1958 and 1964, are especially important for three reasons. First, there are a sufficient number of photographs to record more than the standard views. Second, they record the structures and open spaces before recent restoration and growth of trees. Most importantly, the photographs were taken by a knowledgeable scholar-photographer

and therefore are not merely pictorial but record important aspects of the architecture which the author discusses in the accompanying text.

Chapter 5, of special importance, includes separate descriptions of: Basic Elements (Plaza, Terrace, Platform, Courtyard, Causeway, and Ball Court); Building Types (Temple, Palace, Altar and Ceremonial Platform, Shrines or Sanctuaries, Ball Courts, Dwelling, and Stelae); and Basic Building Groupings (Temple Groups, Palace Groups, Quadrangle Groups, Acropolis Groups, and Special Astronomical Assemblages). Chapter Six provides an informed review of Maya building technology. The chapter on individual cities includes Uxmal (8 pages text, 7 reconstruction drawings, and 31 photographs), Kabah (4 pages text, 1 reconstruction drawing, and16 photographs), Sayil (4 pages text, 2 reconstruction drawings, and 7 photographs [the photograph and restoration drawing of the northwest corner of the Great Palace is incorrectly captioned northeast corner]), and Labná (4 pages text, 1 reconstruction drawing, and 12 photographs). Andrews' epilogue is a moving reflection on the character and meaning of Maya architecture, concluding with the sentence: "The development of a truly monumental architecture, and in turn large urban communities, starting with only a thatched-roof hut as a model, was surely the most remarkable architectural accomplishment of the New World" (p.456).

Andrews, George F.
Pyramids and Palaces, Monsters and Masks: The Golden Age of Maya Architecture. *The Collected Works of George F. Andrews*. 3 vols. Lancaster, CA: Labyrinthos, 1995, 1997, and 1999.

The collected writings and lecture papers of George Andrews on the architecture and culture of lowland Maya civilization. These are based on detailed, on-site observations, documenting "nearly 1000 buildings at 242 sites". 145 of these sites are from the Puuc and Chenes-Puuc regions (Vol. 1, p. v). The study is focused on buildings, superstructures, not on "free-standing platforms, stepped podium (pyramids), ballcourts, altars, or building platforms", though he notes that his approach to style could also be applied to these (Vol. 1, p. 5). Volume 1 deals with Puuc and Northern Plains region of the Yucatan. Volume 2 deals with the Chenes and Rio Bec regions. Volume 3 deals with the southern regions and pan-maya topics. The volumes are illustrated with a remarkable archive of photographs, line drawings, maps, and charts almost entirely by the author. These include some 70-100 photographs and nearly 200 line drawings for each volume. Based on this documentation, Andrews proposes various conclusions regarding patterns, styles, and overall characteristics, and on functions, origins, and influences.

In a remarkably systematic introduction to his study, Andrews lists the stylistic attributes of Maya buildings, broken down under the categories of architectural, constructional, and decorative features. He provides a list of the features for each of these three categories and notes the ways in which they can best be analyzed (Vol. 1, pp. 3-4). He then writes: "When it can be demonstrated that a particular constellation of architectural, construction, and decorative features has become so standardized that the same constellation appears over and over again in a large number of buildings, this combination of features becomes diagnostic for a specific style. It must

be emphasized that a single category of features is not sufficient to describe a building in terms of style, even though the literature is filled with references to Puuc style buildings solely on the basis of their construction features alone. . . As a final point, floor plans, room arrangements, and building size cannot be considered as stylistic attributes of buildings; a small one-room building or a large, multi-room structure can be executed in any architectural style" (p. 5).

Volume 1 is separately listed and annotated in Puuc and Yucatan sections of this web bibliography.

ARTstor
Available on the web through ARTstor subscription at:
http://www.artstor.org/index.shtml
(accessed 2007 Dec. 8)

This is one of the two most extensive, publically available collections of early photographs of Uxmal, Kabah, Sayil, and Labná, either in print or on the web. The other equally large collection, also on the web, is hosted by the Peabody Museum of Archeology and Ethnography, Harvard Univsrsity (which see). The photographs on the ARTstor website are from the Carnegie Institution of Washington Maya Excavations, and are also housed at the Peabody.

Some of the same photographs appear on both web sites. The photographs include distant views, views of individual buildings, including lesser known structures, interiors, many details of collapsing sections and individual pieces of fallen architectural sculpture, reliefs, etc. Both sets of photographs show some structures as discovered, some uncovered, and some at various early stages of restoration.

The main differences are that the ARTstor images can be opened larger and at higher resolution, allowing viewers to examine the images in greater detail, a significant advantage for photographs of these elaborate and much restored Maya sites. Also, as of December 2007, the catalogue information posted with the ARTstor images is much more extensive than that on the Peabody site. However, ARTstor images are only available at subscribing institutions in the United States, whereas the Peabody images can be viewed by anyone with Internet connection anywhere in the world.

The Carnegie Institution of America photographs were taken between 1913 and 1957 during the Maya expeditions sponsored by the CIW.

On the ARtstor web site, there are 462 images of Uxmal, 330 of Kabah, 235 of Sayil, and 193 of Labná. The images can be opened full screen-size and larger. Most are magnificent, grey-scale photographs, highly professional and superbly lit for maximum detail and legibility.

Ashmore, Wendy
"Deciphering Ancient Maya Site Plans". *New Theories of the Ancient Maya*, ed. Elin Danien and Robert J. Sharer: 173-184. Philadelphia, PA: University of Pennsylvania Museum of Archaeology and Anthropology, 1992.

Ashmore, Wendy
"The Idea of A Maya Town". *Structure and Meaning in Human Settlement*, ed. Tony Atkin and Joseph Rykwert: 35-54. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology, 2005.

A review of previous publications on the structure and meaning of Pre-Columbian Maya settlements. Ashmore then follows recent research in describing how the Maya imbued their built environment with even more intricate spatial structure and meanings than earlier scholarship had recognized. She argues that "both similarities and differences among recorded towns and cities express shared worldviews as shaped by local political history" (p. 35). Ashmore describes how astronomy, landscape mimicry, and cosmology have served to determine the form and layout of Maya towns and cities. She argues that "establishing a town or civic precinct with a dominant north-south axis mapped this central creation act on the ground. He who literally commanded construction of the civic complex could be equated with First Father, he who ordered the entire cosmos" (p. 44). Ashmore finds that many of the differences in local civic plans resulted from the length of occupation and from "political motives of those directing planning and construction" (p.49). Although relevant, her examples do not include any Puuc cities.

Ashmore, Wendy, ed.
Lowland Maya Settlement Patterns. A School of American Research Book. Albuquerque: University of New Mexico Press, 1981.

Papers developed from a 1977 seminar at the School of American Research at the University of New Mexico. Although research on settlement pattern has been one of the dominant fields of Maya research in the two-and-a-half decades following this publication, these papers provide an invaluable foundation for the study of important aspect of all Maya architecture.
None of the papers deal directly with the Puuc region. In the only extended description of Uxmal, Kabah, Sayil or Labná, Edward B. Kurjack and Silvia Garza T. write: "The famous causeway joining Uxmal and Kabah described by Stephens (1843) is very low and narrow, some 30 centimeters high, four meters wide, and 18 kilometers long. Halfway between Uxmal and Kabah the causeway passes Nohpat, a site that is almost as big as Kabah. Indeed, aerial photographs indicate Uxmal does not contain much more substantial architecture than either Kabah or Nohpat though recent fieldwork (Alfred Barrera R. and Baltaza Gonzales F., personal communication) indicates the concentration of smaller ruins in the vicinity of Uxmal is very extensive. Still, this system seems to have included two secondary centers that were almost as massive as the site presumed to have been the primary settlement" (p.306).

Ashmore, Wendy
"Site-planning Principles and Concepts of Directionality among the Ancient Maya". *Latin American Antiquity,* Vol. 2, No. 3 (1991): 199-226.

Ashmore, Wendy and Jeremy A. Sabloff
"El orden del espacio en los planes cívicos mayas". *Arquitectura e ideología de los antiguos mayas*, ed. Silvia Trejo. Memoria de la Segunda Mesa Redonda de Palenque. México: Conaculta-INAH: 15-34.

Ashmore, Wendy and Jeremy A. Sabloff
"Spatial Orders in Maya Civic Plans". *Latin American Antiquity*, Vol. 13, No. 2 (Jan. 2002): 201-215.

The authors describe the contrast between the clarity of spatial order in civic plans of cities with relatively short and simple political histories and, on the other hand, the partially blurred spatial order in cities with longer and more turbulent political histories. In both cases they reaffirm that the city layout and the position and arrangement of Maya buildings and open spaces express ideas of cosmology and political order. The authors review various scholar's proposals about the ways in which astronomical phenomena served as the basis for civic design. They write that the plan of Labná seems to have been copied from the plan of the slightly larger, near-by, city Sayil; and that "the civic plans of both Sayil and Labná resemble those of major Classic centers of the Southern Lowlands" (p. 208).

Aveni, Anthony
"The Real Venus-Kukulcan in the Maya Inscriptions and Alignments". *Sixth Palenque Round Table, 1986*. Merle Greene Robertson, gen. ed., Virginia M. Fields, vol. ed.: 309-321. Norman: University of Oklahoma Press, 1991.

Aveni, Anthony F.
Skywatchers. Austin: University of Texas Press, 2001 (1st ed., *Skywatchers of Ancient Mexico*, 1980).

> The classic study of the pervasive role of astronomy in Pre-Columbian culture. Aveni distinguishes between two closely related academic disciplines: "archaeoastronomy. . . . the study of the extent and practice of astronomy among ancient culture" and "astroarchaeology . . . the study of astronomical principles employed in ancient works of architecture and the elaboration of a methodology for the retrieval and quantitative analysis of astronomical alignment data."
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> Chapter Five deals with astronomy and architecture, including a section on "Maya Cities: Architecture and Sacred Landscape," with brief discussions of the Puuc and Uxmal. Aveni argues that "the architecturally replicative nature of Maya, and particularly Puuc, centers argues for an all-pervasive ideology (and rules for its practice) that tied people together regardless of how dispersed the social order had become. In the terminal Classic Puuc sites, the separateness . . . [of] individual complexes . . . is counterbalanced by the overall unity of the site displayed in the careful and deliberate planning and orientation of these complexes about a basic axis. . . . we find nearly identical plans and orientations over a range of widely separated cities. My conviction is that a state calendar . . . played a role in certain stages of site planning.' (p. 250).

The author's long-term study of the astronomical placement, orientation and intersite alignment of Uxmal buildings, especially the Palace of the Governor (pp.283-288) has provided one of his most detailed and convincing demonstrations. He diagrams the astronomical placement of Uxmal buildings radiating from the commanding doorway of Uxmal's primary temple, the Pyramid of the Magician (fig.106). He reproduces a telephoto photograph showing the precise alignment of the central doorway of the Palace of the Governor, aligned perpendicularly to the façade, to the double-headed Jaguar Throne on a platform before the Palace, and, in the distance, an artificial at Cehtzuc. This alignment marks the southern extreme of Venus, "the place on the eastern horizon where Venus would have risen at the time of its maximum southerly eight-year excursion about A.D. 800 (p.288). Joined with the uniquely pervasive Venus imagery on the Governor's Palace and the otherwise inexplicable orientation of the façade in relation to other Uxmal buildings, Aveni's argument is convincing, providing one of his many examples of the astronomical alignment of Mesoamerican temples to the sun, stars and planets.

Aveni, A. and H. Hartung
Maya City Planning and the Calendar. Transactions of the American Philosophical Society, Held at Philadelphia for Promoting Useful Knowledge. Vol. 76, Pt. 7. Philadelphia: American Philosophical Society, 1986.

Aveni, sometimes jointly with other authors, has written more than 15 articles and 1 book on the astronomical orientation of Pre-Columbian, especially Maya, cities. *Maya City Planning and the Calendar* is a major, detailed study of architectural alignments in the Puuc region and what they reveal of the Maya solar year. The authors point out that, in comparison with other Maya sites, the Puuc region provides especially favorable conditions for such a study, because Puuc cities rose to prominence at approximately the same time over a relatively short period, are clustered geographically and share a unique artistic style. The authors provide a detailed, complex astronomical argument for the similarity in alignment at most Puuc sites (median 14 degrees east of true North). In addition to a description of the characteristic of Maya site planning and of Puuc site planning, the article includes descriptions of some 10 individual site plans, including those of Uxmal, Sayil, Kabah, and Labna. Each of these includes a full-page map and detailed description.

These are followed by sections on "The Question of Site Chronology", "Calendrical Implications of Astronomical orientation Hypotheses", and "A recapitulation: The Orientation Calendar in a Cultural Context". There is an appendix of 3 tables: "Alignments of Major Maya Structures"; "Astronomical Alignments Marking the Solar Year at Uxmal"; and "Hypothetical Solar Orientation Calendar Centered about Zenith Passage Dates". Includes an extensive list of references, happily focused on the subject of their article, also a geographical index.

B

Baudez, Claude and Sydney Picasso
Lost Cities of the Maya. New York: Harry N. Abrams, 1992.

Benson, Elizabeth P., ed.
City-States of the Maya: Art and Architecture. Rocky Mountain Institute for Pre-Columbian Studies. 1986.

The papers from a January 1986 conference, organized by the Rocky Mountain Institute for Pre-Columbian Studies and held at the Denver Museum of Natural History. The papers present recent information and interpretations on the art and architecture of 5 Maya cities: Copan, Edzna and El Mirador, Palenque, Tikal, Uxmal.

The following paper is separately listed and annotated in this web bibliography:
Kowalski, Jeff Karl, "Uxmal: A Terminal Classic Maya Capital in Northern Yucatan"

Bernal, Ignac
"Maya Antiquaries". *Social Process in Maya Prehistory: Studies in Honour of Sir Eric Thompson,* ed. Normal Hammond: 19-43. London: Academic Press, 1977.

This essay was written just before the author's longer and more broadly encompassing book, *A History of Mexican Archaeology: The Vanished Civilizations of Middle America* (London: Thames and Hudson, 1980). Like it, this essay is uniquely informed. The essay surveys the entire history of western antiquarians, writers who were interested in varying ways and degrees in Maya ruins. Writing from the perspective of his own people, Bernal's descriptions of some of the western writers are fair but less flattering than in other publications.

Bernal divides Maya research into 2 broad stages. "The first begins in the sixteenth century and goes on to the middle of the eighteenth century . . . ." (p.20). He writes: "although for more than 200 years not one single excavation seeking knowledge took place, a series of often very intelligent descriptions of places, monuments and objects were set down. There was the idea of using these material remains as documents to investigate the origins and the history of the Maya. We also notice great admiration for architecture and sculpture" (p. 25). Barnal notes that "there was no move towards preservation or desire to collect objects. The first signs of any such activity only appear in the second half of the eighteenth century" (p. 24). Bernal writes that "the second great period of interest in ruins began toward the middle of the eighteenth century and extended as far as the eighth decade of the nineteenth century' (p. 25). He describes this much more complex period comprehensively and in considerable detail. I know of nothing else comparable to this essay and especially to the author's book mentioned above.

Blankholm, Hans Peter
Intrasite Spatial Analysis in Theory and Practice. Aarhus, Denmark: University Press, 1990.

Blom, Frans
The Conquest of Yucatan. Boston: Houghton Mifflin Co., Riverside Press, Cambridge, 1936.

A popular and engagingly told, but authoritative account of the 16th century Spanish conquest of the Yucatan, early history of occupation, and of pre-conquest Maya civilization. Chapter 28 describes ancient Maya architecture. There are 2 photographs of Labná and 4 of Uxmal, plus a photo of the Kramer-Fair model of the Nunnery.

In describing Uxmal, Blom makes the claim for conscious perspective adjustments by Maya architects for visual effect. He writes: "The chief engineer, Mr. Robert H. Merrill, made a careful survey of the ground plan, which disclosed the astounding fact that the Maya about the year A.D. 1000 were conversant with the rules of false perspective. As one ascends the great stairway leading up to the arched entrance of the Nunnery courtyard, and enters the court, one receives the impression that the court is rectangular, but the survey showed that the east and west buildings, which form the two sides of the court, had their north ends closer together than their south ends, and furthermore, it was found that the floor of these two temples lies three and a half feet higher toward the north than toward the south. . . It is evident that the Maya architects and engineers laid out their buildings in this way in order to center the attention of those who entered the court upon the mighty temple lying in front of them on the north terrace and to give the general impression that the courtyard looked deeper than it really was" (pp. 180-181).

Blom also provides a description and interpretation of the so-called "negative batter" in Puuc region architecture. "It was found that the elaborately carved facades had a negative batter; that is to say, were leaning slightly outward. The Maya architect undoubtedly used this little trick in order to make the different planes of his carving throw deeper shadows than if he had built the wall vertical, and these deep shadows made the figure carved in relief stand out more sharply in strong sunlight" (p. 181).

Some of the illustrations in this book are reproduced on this web site.
http://academic.reed.edu/uxmal/galleries/thumbnails/drawings/Drawings-Leyrer-Blom.htm

Blom, Frans
"Maya Calculation and Construction". *The Military Engineer.* Vol. 27, Nos. 1-5. Washington, 1935.

Blom, Frans Ferdinand
Ruins in the Maya Area. After Blom and Ricketson, with some additions by Herbert J. Spinden, 1928, and revised by Blom (New Orleans, 1928).

Boone, Elizabeth Hill
"The Color of Meosamerican Architecture and Sculpture". *Painted Architecture and Polychrome Monumental Sculpture in Mesoamerica. A Symposium at Dumbarton Oaks,*

10th to 11th October 1981: 173-187. Ed. Elizabeth Hill Boone. Washington, D.C.: Dumbarton Oaks Research Library and Collection, 1985.

In her summary paper, Boone writes that "Although not all buildings and sculptures were painted, a sufficient number were colored red, or with a rich polychrome, to suggest that most Mesoamerican ceremonial and political centers were either entirely painted in brilliant hues or were highlighted with color". She adds that " Buildings and sculptures in Mesoamerica seem not to have been painted as an afterthought, rather, paint was an integral part of the creative process and was probably carefully considered before and during construction and the carving of monuments" (p.173).

Boone, Elizabeth Hill, ed.
Painted Architecture and Polychrome Monumental Sculpture in Mesoamerica. A Symposium at Dumbarton Oaks, 10th to 11th October 1981. Washington, D.C.: Dumbarton Oaks Research Library and Collection, 1985

Seven papers, the only wide-ranging review of evidence for painting on architecture and sculpture in Mesoamerica. The two following papers are separately listed and annotated in this web bibliography:

Kowalski, Jess Karl, "Painted Architecture in the Northern Maya Area", pp. 51-90, color plates 3-5.
Boone, Elizabeth Hill, "The Color of Meosamerican Architecture and Sculpture", pp. 173-186.

Bourbon, Fabio
Le città perdute dei Maya: La vita, l'arte e le scopperte di Frederick Catherwood. Valeria Manferto De Fabianis and Fabio Bourbon, eds; Paola Piacco, graphics. Vercelli, Italy: Edizioni White Star,1999.
Also published in English as *The Lost Cities of the Mayas: The Life, Art, and Discoveries of Frederick Catherwood*. New York: Abbeville Press Pub., 1999.

A glossy, large format, 200 page volume, every page including at least one illustration, all but a few in vivid color. The first 30 pages or so survey Catherwood's life previous to his first visit to Mexico. Most of the rest is devoted to Catherwood's published prints of Central America and the Yucatán.

All of Catherwood's color lithographs from his major 1844 publication, *Views of Ancient Monuments in Central America, Chiapas, and Yucatan*, are reproduced. They are somewhat cropped and with color and sharpness intensified. Nevertheless, they are immensely valuable, the only post-1844 reproductions in print that I know from these famous and rare multicolored prints. Because they are reproduced large, a great deal of detail can be seen. In addition to the cover and map from the 1844 volume, the 8 prints of Uxmal, 2 of Kabah, and 1 of Labná are reproduced.

There are also reproductions of the prints from Stephens and Catherwood's 1841 and 1843 publications. Here, the originals are black line etchings, but these have been artificially colored for this 1999 book. Where the prints are landscape views without

color detail in the architecture, the added color in these 1999 reproductions is not seriously misleading. However, where the original prints are close-ups of sculpted mask and carvings, the added color is hypothetical and sometimes peculiar in the extreme (esp. pp. 169-171). Many of these later reproductions are larger than the original prints and cropped where they overrun the edges of the pages. From these 1841 and 1843 black etchings, there are 14 of Uxmal, 8 of Kabah, 2 of Sayil, and 4 of Labná.

Much smaller, but more accurate, reproductions of the 1844 color lithographs are available on the web at:
http://www.smith.edu/library/libs/rarebook/exhibitions/catherwood/index.htm

Larger and more accurate reproductions of the brown-toned edition of these same 1844 lithographs are reproduced on this web site:
http://academic.reed.edu/uxmal/galleries/thumbnails/drawings/Drawings-Catherwood.htm

Large, accurate images of the 1841 and 1843 black-line etchings are also reproduced on this web site:
http://academic.reed.edu/uxmal/galleries/thumbnails/drawings/Drawings-41Stephens.htm
and
http://academic.reed.edu/uxmal/galleries/thumbnails/drawings/Drawings-Stephens.htm

Bowditch, Charles P.
"On the Age of Maya Ruins". *American Anthropolgist,* n.s (1901): 697-700.

Brown, Clifford T. and Walter R. T. Witschey
"The Electronic Atlas of Ancient Maya Settlements: a Geographic Information System (GIS)". "Copyright 2001, 2002, 2005, 2008".
On the web at:
http://mayagis.smv.org/index.htm
(accessed 2008 March 13)

The purpose and uses of the Atlas are described. The site includes information on "The Maya Area", "Using a GIS System", 6 papers on the subject by the authors, and a group of informative "Maps of the Maya Area". Research and additions to the site are ongoing.

Brown, Clifford T. and Walter R. T. Witschey
"The fractal geometry of ancient Maya settlement". *Journal of Archaeological Science*, Vol. 30 (2003), 1619-1632.
On the web at:
http://mayagis.smv.org/papers.htm
(accessed 2008 March 13)

The authors describe the nature of fractals and fractal geometry and its uses in archaeologcial analysis. Using Mayapan as an example, they describe the fractal nature of Maya settlement pattenrs. They "show that the fractal dimensions calculated for some Maya settlement patterns are similar to those produced by warfare, supporting recent claims that warfare is a significant factor in Maya settlement patterning."

Brown, Clifford T. and Walter R. T. Witschey

"The Geographic Analysis of Ancient Maya Polity and Settlement". A paper presented at the Electronic Cultural Atlas Initiative Conference, City University, Hong Kong, January 2001. Published in the ECAI CD-ROM, *Proceedings of the 2001 Pacific Neighborhood Consortium and Electronic Cultural Atlas initiative Conference*, Academic Sinica, Taiwan.
On the web at:
http://mayagis.smv.org/papers.htm
(accessed 2008 March 13)

The authors describe their development of "a geographic information system (GIS) for the purpose of studying prehistoric Maya settlement and society." They write that "The GIS is composed of archaeological, epigraphic, and locational data. It includes the whole Maya area and is designed for the study of regional issues, such as political organization, dialectology, and material culture."

Brown and Witschey first briefly describe the ancient Maya and note that "Most of the problems and analyses that we discuss below concern lowland Maya culture, although the GIS includes data from the Maya highlands, too." Next, they provide an excellent review of theories regarding "the scale and character of Maya politial organization." There is an excellent descripton of the methods used to collect, map, and analyse all data relevant to these questions. To date, they have concentrated their study on some 1197 archaeological sites in the state of Yucatán. There is a bibliography of sources especially relevant to their paper. The PowerPoint presentation from their 2001 paper is included.

Brunhouse, Robert L.

In Search of the Ancient Maya: the First Archaeologists. Albuquerque: University of New Mexico Press, 1973 (a paperback edition, with different pagination, was published by Ballantine Books, New York, in 1974).

This is one of a pair of books by Brunhouse describing the life stories of 15 Maya explorers and archaeologists who worked from the late 18th to early 20th centuries, their adventures in the Americas and their approaches in Maya studies. This volume, dealing with the early years, describes the lives of Antonio del Rio and Guillermo Dupaix, Juan Galindo, Jean Frédéric Waldeck, John Lloyd Stephens, Charles Étienne Brasseur de Bourbourg, Augustus Le Plongeon, and Edward H. Thompson. The introduction is a thoughtful reminder that there was no professional training available in archaeology at the time and that all of these individuals were amateurs, however remarkable. Brunhouse also provides a description of the physical and intellectual conditions under which they worked. There are only occasional references to the

Puuc region, but there are two pages describe Thompson's commission to prepare molds of Puuc buildings for the 1893 Chicago World's Fair, requiring 14 months and producing 10,000 square feet of molds (pp.177-178). There is an important bibliography listing separately works by and about each of the 8 individuals, with brief, valuable critical comments.

The same author's book, *Pursuit of the Ancient Maya: Some Archaeologists of Yesterday,* published two years later by the same press, describes the lives and careers of 7 later explorer-archaeologists: Teobert Maler, Alfred P. Maudslay, Sylvanus G. Morley, Frederick A. Michell-Hedges, Herbert J. Spinden, William E. Gates, and Fras Blom.

Brunhouse, Robert L.
Pursuit of the Ancient Maya: Some Archaeologists of Yesterday. Albuquerque: University of New Mexico Press, 1975

This is one of a pair of books by Brunhouse describing the life stories of 15 Maya explorers and archaeologists who worked from the late 18th to early 20th centuries, their adventures in the Americas and their approaches in Maya studies. This volume, dealing with the later years, describes the lives of Teobert Maler, Alfred P. Maudslay, Sylvanus G. Morley, Frederick A. Michell-Hedges, Herbert J. Spinden, William E. Gates, and Fras Blom.

Relatively little attention is given to the Puuc region. An account is given of the important discoveries made at Uxmal by Blom and his party in 1930 when carrying out research and making casts for the 1933 Century of Progress Exposition in Chicago (p.196). Brunhouse notes that Morley "considered the Governor's Palace at Uxmal the finest building in prehispanic America, a view shared by many other people" (p.60). In the chapter on Spinden, more attention is given to theoretical concepts than in chapters on the other archaeologists, describing Spinden's extensive system of correlation. Brunhouse writes that "he produced a brilliant analysis of the evolution of styles in *A Study of Maya Art* which remains a landmark on the subject" (p.95). In the chapter on Morley, Brunhouse describes the advanced conservation practices of the Carnegie Institution of Washington (C.I.W.); its "refusal to ask for artifacts which might be found in the course of excavation", insisting instead that the C.I.W. "must restrict its work to excavation and scholarly reports of the result." "The other policy of the C.I.W. required faithful restoration of the ancient structures . . . the C.I.W. followed the rigid policy of utilizing only stones which had fallen from a structure and adding no others. If modern materials like steel supports were used to preserve a building, they were hidden from view" (p.67). There is an important bibliography; selective and critical, listing separately works by and about each of the 7 figures.

The same author's book, *In Search of the Ancient Maya: the First Archaeologists*, published two years before by the same press, describes the lives and careers of 8 different explorer-archaeologists: Antonio del Rio and Guillermo Dupaix, Juan Galindo, Jean Frédéric Waldeck, John Lloyd Stephens, Charles Étienne Brasseur de Bourbourg, Augustus Le Plongeon, and Edward H. Thompson.

C

Capitan, Dr.
"Quelques Caractéristiques de l'Arquitectura Maya." *International Congress of Americanists. Proceedings of the XVIII. Session, London, 1912*. 216-219. Kraus Reprint, 1968.

Carlson, John B.
"Maya city planning and archaeoastronomy," *in Archaeoastronomy Bulletin* 1(3). Center for Archaeoastrohomy. College Park: University of Maryland: 4-5.

Carrasco Vargas, Ramón
"Formación sociopolitica en el Puuc: El Sacbé Uxmal-Nohpat-Kabah". A paper presented at the 3rd Mesa Redonda de la Sociedad Española de Estudios Mayas, Guiona, 1991. Published in *Memorias de la III Mesa Redonda de la SEEM*. Girona, 1991-92. Also published in: *Perspectivas antropológicas en el mundo Maya*, ed. M. Josefa Inlesias Ponce de Leona and Francesco Ligorred Perramón: 199-212. Madrid: Universidad Complutense de Madrid, Facultad de Geografia e Historia (Publicaciónes de la Sociedad Española de Estudios Mayas, 2), 1993.

> The author observes that the Uxmal-Nohpat-Kabah sacbé has been used to claim the position of Uxmal as regional capital. Instead he argues that the evidence from an exploration of the sacbé in 1990 demonstrates that all three cities were part of a regional organization, based on a political agreement that allowed their autonomous populations to interact equally and to retain their own integrity. Carrasco Vargas calls attention to the overlooked importance of Chetulix as the end of the sacbé, which never arrived at Uxmal. Based on the remaining evidence, he makes the extraordinary claim that Nohpat may have been as important as Uxmal. He describes the monumental area of Nohpat as surpassing in some ways the monuments of Uxmal. In tracing the sacbé from Kabah to Nohpat to Chetulix, the author provides the most detailed description of various aspects of this often mentioned roadway.

Carrasco Vargas, Ramón
"Formación sociopolitica en el Puuc: El Sacbé Uxmal-Nohpat-Kabah".
A paper presented at the 3rd Mesa Redonda de la Sociedad Española de Estudios Mayas, Guiona, 1991. Published in *Memorias de la III Mesa Redonda de la SEEM*. Girona, 1992.

> Chap. XIV, pp. 59-64, with 5 ill." (ref. Saville 1921, p. 110).

Christie, Jessica Joyce, ed.
Maya Palaces and Elite Residences: An Interdisciplinary Approach. Austin: University of Texas Press, 2003

> An anthology of eleven papers. The editor writes that "the main purpose of this volume is to present an interdisciplinary approach and bring together scholars in archaeology, anthropology, art history, and epigraphy, as well as information from a number of

different Maya sites, to see what kind of formal and functional patterns in palaces and elite residences can be isolated and in what ways they reflect the structure of Maya society" (p.9). The editor provides an introduction and conclusion, sectioned by form, location, function, and social structure. In agreement with the other authors, she writes that "the architectural space was sacred and used for ceremonies and official events, but it was also residential because the domestic, religious, and public lives of the Maya were integrated. Maya existence was not and is not divided into a public and private life; both aspects coexist and overlap, and so do the uses of Maya houses" (p.311).

The following 2 chapters, deal with palaces in the northern Yucatan, including the Puuc region, and are separately listed and annotated in the bibliography for this web site:

Jeff Kowalski, "Evidence for the Functions and Meanings of Some Northern Maya Palaces".
Edward B. Kurjack, "Palaces and Society in the Northern Maya Lowlands".

Coggins, Clemency C.
"Proskouriakoff, Tatiana". *The Oxford Encyclopedia of Mesoamerican Cultures: The Civilizations of Mexico and Central America.* Vol. 1: 37-38. Ed. David Carrasco. 3 vols. Oxford University Press, 2001.

A review of the major accomplishments of Tatiana Proskouriakoff. Regarding graphic documentation, the author points out that Proskouriakoff's first employment with the Carnegie Institution of Washington, D.C. was based on her "surveying, drafting, and skill in architectural reconstruction". Coggins also calls attention to her architectural reconstruction water-color drawings in her *Album of Maya Architecture*, published in 1946. She describes Proskouriakoff's rigorous analysis and drawings of "bodily positions, regalia, and decorative motifs" of Classic southern lowlands monumental sculpture in her 1950 *Study of Maya Sculpture*, and her study of the monumental sculpture of the northern lowlands in her 1951 "Some Non-Classic Traits in the Sculpture of Yucatan".

Cohodas, M.
"Diverse Architectural Styles and the Ball Game Cult: the Late Middle Classic in Yucatan". *Middle Classic Mesoamerica: A.D. 400-700,* ed. E. Pasztory: 86-107. New York: Columbia University, 1978.

F

Fash, William L.
"Maya". *The Oxford Encyclopedia of Mesoamerican Cultures: The Civilizations of Mexico and Central America.* Vol. 1: 181-189. Ed. David Carrasco. 3 vols. Oxford University Press, 2001.

This is a comprehensive description of the Maya, organized under 7 headings: “Geography and Cultural Ecology”, “Languages”, “Preclassic Period”, “Classic Period (250-900 CE)”, “Postclassic period (900-1500 CE)”, “Colonial Period”, and “Nineteenth and Twentieth Century”. The author writes that “the stunning accomplishments of the pre-Hispanic Maya in the fields of art, architecture, astronomy, writing, and agriculture, as well as the religious ideology that inspired them, have made them perhaps the single most studied archaeological culture of the New World” (p. 181).

Regarding architecture, Fash importantly observes that the “intense competition between noble families . . . often resulted in violent conflict . . . [but that] it also led to rival artistic and architectural productions on an enormous scale. . . . Despite great similarities [among the Maya communities] in underlying belief systems, environmental adaptation and horticultural strategies, technology, and other shared material culture, each sought to create its own distinctive style and media in its public monuments” (p. 185). The Puuc region is described briefly at the end of the section on the classic period.

Ferguson, William M., and John Q. Royce.
Maya Ruins in Central America in Color: Tikal, Copán, and Quiriguá. Color photographs by William M. Ferguson and John Q. Royce. Albuquerque: University of New Mexico Press, 1984.

Three closely related books with color photograph by Ferguson and Royce have been published. The two other titles, *Maya Ruins of Mexico in Color* (1977) and *Mesoamerica’s Ancient Cities* (1990/2001) are separately listed and annotated in this web bibliography. In all 3 titles, there are excellent, up-to-date texts, but the unique contribution of these three publications is the inclusion of aerial photographs. Because *Maya Ruins in Central America in Color* does not treat any Puuc sites, it is listed here because of its importance in photo recording.

Ferguson, William M., in collaboration with John Q. Royce. Color photographs by William M. Ferguson and John Q. Royce.
Maya Ruins of Mexico in Color: Palenque, Uxmal, Kabah, Sayil, Xlapak, Labná, Chichén Itzá, Cobá, Tulum. Color photographs by William M. Ferguson and John Q. Royce. Norman: University of Oklahoma Press, 1977.

Three closely related books with color photograph by Ferguson and Royce have been published. The two later titles, *Maya Ruins in Central America in Color* (1984) and *Mesoamerica’s Ancient Cities* (1990/2001) are separately listed and annotated in this web bibliography. In all 3 titles, there are excellent, up-to-date texts, but the unique contribution of these three publications is the inclusion of aerial photographs, in color, taken by Ferguson and Royce at relatively low altitudes, showing the layout of entire ceremonial centers with some of the surrounding area. These are taken at oblique angles, which, for most purposes, is more informative than direct overhead photographs, usually taken from higher altitudes. All 3 titles include diagrams

accompanying the overrall aerial photograph of sites, identifying the individual buildings.

The text material on pages 66-132 on the Puuc Area "was prepared in consultation with Jeff Kowlalski . . . and was reviewed by Arthur G. Miller. . . ." (p.66). This is the largest number of photographs of Puuc sites in the 3 titles of Ferguson and Royce photographs. There are 41 photographs of Uxmal (6 aerial), 6 photographs of Kabah (2 aerial), 5 of Sayil (1 aerial), and 9 of Labna (2 aerial).

Folan, William J., Joyce Marcus, and W. Frank Miller
"Verification of a Maya Settlement Model through Remote Sensing". *Cambridge Archaeological Journal,* Vol. 5: 277-283.

Foncerrada de Molina, Marta
"La arquitectura Puuc dentro de los estilos de Yucatán". *Estudios de Cultura Maya*. Vol. 2: 225-238. México: Universidad Nacional Autónoma de México, 1962.

Based on stylistic similarities and differences, this is an exceptionally thorough, clear examination of the cultural relationships between the Puuc region and others areas of Pre-Columbian Mexico. Listing architectural features that the Puuc, Rio Bec, and Chenes regions have in common, the author states that the architectural style of the three regions are so similar, and so unique in relation to other styles, that it is impossible to separate them entirely. Nevertheless, she claims that Puuc architecture achieved a unique equilibrium of architecture and sculptural decoration and represents the culmination of plastic qualities undeveloped in the southern cities. Based on her description of Puuc characteristics, Foncerrada de Molina argues that the Puuc region probably suffered a weak Toltec occupation, but she lists relatively few stylistic similarities and thus argues for the autonomy of Puuc style in relation to Toltec culture. To examine this relationship, she recommends an especially in-depth study of the Pyramid of the Magician, Uxmal. Foncerrada de Molina calls attention to the many problems remaining in attempting to understand the relationships among the various Maya centers. For examples, she notes that both Mitla and the Puuc region possess a richness of geometric ornamental motifs, perfectly integrated to the architecture, but that the relationship between these regions remains to be established. Since she believes that written records can be biased and are therefore unreliable, she claims that the missing relationships among Maya regions can only be established with further archaeological study of both known and previously unstudied sites.

Foncerrada de Molina, Marta
La escultura arquitectónica de Uxmal. Estudios y fuentes del arte en México, 21. México: Instituto de Investigaciones Estéticas, Universidad Nacional Autónoma de México (UNAM), 1965.

This was a groundbreaking publication not only for our understanding of Uxmal but of the entire Puuc region and its relationship to Maya culture overall. Foncerrada de Molina states that Uxmal has previously been misunderstood as a late-phase of the classic period of Central Maya areas. Instead, she proposes that Uxmal is a regional

variant that developed during the same time period. She arrives at this conclusion through a stylistic analysis of the architectural sculpture of Uxmal, together with its religious and symbolic meanings. She writes that Uxmal has received relatively little attention from historians of pre-Hispanic art, especially from an aesthetic point of view.

Chapter 1 provides a valuable review of previous studies of Uxmal, calling attention to many significant contributions by previous scholars but noting the almost total disregard of specialized studies of Uxmal. Instead, in 1965, hers was a rare in-depth study. Chapter 2 relates the architecture of Uxmal to the styles of the Yucatán, calling attention to the uniqueness of the Puuc style. Moreover, she emphasizes the autonomy of Puuc culture in relation to Toltec culture, with which it has frequently been associated, seeing the Puuc style as part of the overall Maya culture. Chapter 3 situates the Puuc style chronologically. Chapter 4 discusses early Maya and Spanish sources. Chapter 5 brilliantly describes, in detail, the harmonious union of symbolic-religious meaning and decorative forms in Uxmal's architecture. Chapter 6, though only 10 pages, would constitute a significant publication on its own, a study of the stylistic evolution of Uxmal through an analysis of the sequence of construction of the Pyramid of the Magician (Adivino). Chapter 7 examines the quadrangles at Uxmal, concluding that the stylistic evidence at Uxmal indicates that the Puuc cities developed without large lapses of time between buildings, such as in the central Maya areas. To demonstrate her analyses of architectural sculpture, there are 26 pages of drawings and 34 of photographs, most high quality. These help to demonstrate how the creators of Uxmal created plastic symbols that largely take over from natural forms.

In her Conclusion, Foncerrada de Molina presents a dynamic view of the development of Puuc culture, as a vigorous expression of its Maya creators, involving the active interaction of complex forms. The creators of Uxmal absorbed influences from many areas, transforming them in original ways.

Foncerrada Moreno, Marta
Estudio Sobre la Ornamentacion de los Monumentos Uxmal. Tesis para optar al gardo de Mastra en Historia de las Artes Plastica, Escuela de Historia del Arte, Universidad Iberoamericana Incorporada a la U.N.A.M. Septiembre, 1963.

This excellent thesis provided the basis for the author's (Marta Foncerrada de Molina) groundbreaking 1965 publication *La escultura arquitectónica de Uxmal*, separately listed and annotated in this web bibliography.

Foncerrada de Molina, Marta
Uxmal, la ciudad del dios de la lluvia. Presencia de México No. 5. México, D.F.: Fondo de Cultura Exonómica, 1968.

A small paperback, but this is not your typical guidebook. Instead of simply taking the reader on a stroll around the site, the author provides a perceptive synthesis of the architectural characteristics of Uxmal and of the Puuc region. She first summarizes

the history and historiography of the Puuc region, then characterizes the city of Uxmal and of the Puuc style. In summary, she writes (in translation):

"One of the most distinctive characteristics of the architecture in Uxmal is the organization of the buildings surrounding the patios forming quadrangles. . . . . In the city there exist two types of architectonic structures:
(1) Pyramidal bases on which temples were constructed . . . .
(2) Buildings of the Paralelupipda form [6-faced polyhedron with parallel faces], rather low, with a system of proportions regimented by the horizontal line. This type of architectonic volume is that which principally distinguished the Puuc styled from others developed by maya art" (p. 19).

Foncerrada de Molina is one of the few scholars who has been willing to see in the architecture of a Maya city overall characteristics of its society. She writes (in translation):

"The almost total absence of the human figure in the Puuc art is evidently a testament of a unique religious-esthetic vision that was radically different . . . . The religious mentality of the towns of the Puuc region was, undoubtedly, less elaborate, more attached to the natural phenomenon deified by those that received their material well-being from nature, and for that reason it was not to include the priestly figure as a guarantee of the benevolence of gods toward the humans who venerate them" (p.25).

This is followed by informative descriptions of a few of the principal buildings. There are 31 diagrams and photographs, a few showing buildings before more resent restorations.

Fuson, R.
"On the Orientation of Mayan Ceremonial Centers". *Annals of the Association of American Geographers.* Vol. 59 (1969): 494-511.

G

Gendrop, Paul
"Dragon-Mouth Entrances: Zoomorphic Portals in the Architecture of Central Yucatán". *Third Palenque Round Table, 1978*, Part 2: 138-150. Merle Greene Robertson, ed. Austin: University of Texas Press, 1980.

Detailed study of the famous zoomorphic portals so prevalent in the central Yucatán. Gendrop describes them in detail and reviews the considerable range of these portals by types of buildings on which they appear, regional location, etc. He argues that these portals, traditionally considered Chenes, may instead have originated in the Rio Bec region. Of special importance for the Puuc region is his discussion of the "Masks of Chaac" (pp.146-147). He writes that "in no other region has the mask been so

intimately associated with Maya architecture as in the central Yucatán Peninsula. . . . Such is the case, in particular, of the mask which has been traditionally identified as representative of the god Chaac, the large-nosed Maya god of rain." In this discussion he mentions the Great Pyramid, House of the Governor, and Quadrangle of the Nuns, Uxmal, the Codz Poop, Kabah, and the Western Group of the Palace of Labná.

Gendrop, Paul
A Guide to Architecture in Ancient Mexico. Toluca, Mexico: Editorial Emahaia, 1974 (4th ed. 1998).

A small 128 page paperback with only 13 pages on Uxmal, Kabah, Sayil, and Labná. However, the author's description of the visual characteristic and details is unusually perceptive, and there is an informative 8-page account of "Construction Materials and Techniques."

Gendrop, Paul
Los Estilos Río Bec, Chenés y Puuc en la arquitectura Maya. México: Universidad Nacional Autónoma de México; Facultad de Arquitectura-Division de Estudios de Posgrado, 1983. (Published in English as *Rio Bec, Chenes, and Puuc Styles in Maya Architecture*, trans. Robert D. Wood. Lancaster, California: Labyrinthos, 1998.)

The emphasis throughout the book is on the chronological and regional progression of stylistic characteristics. Gendrop's reconstruction of this development is based on detailed identification of stylistic characteristics and the assumption that they were developed in more or less rational order: simpler to more complex, tentative origins to more fully developed examples. Through this time-tested art historical method, Gendrop presents convincing evidence to support his belief that many architectural forms and motifs that characterize Puuc style originated in the Río Bec region, arriving in the Puuc by way of the Chenes region. Because he had studied these closely related styles, he was able to identify, as no other author had, what is distinctive and especially what is innovative and unique about Puuc architecture. Four of the book's fourteen sections are devoted to stages of Puuc style development. Because he is meticulous in his descriptions, the writing is dense but well worth the effort to read carefully.

The book is notable for its detailed observations with accompanying drawings and photographs. Of special note are the author's splendid descriptions of the aesthetic quality of Puuc architecture as part of the structure's historical context. Note this brief excerpt from his three paragraph description of the famous Kabah arch: "the principle of the corbelled vault was conceived only as a system of construction for roofing interior spaces . . . . Here, on the other hand, the vault is used intentionally as a powerful formal resource penetrating the façade from one side to the other and opening plainly to the outside" (p.190). Or note this comment on the East Building of the Nunnery Quadrangle: "As seems to be the rule in the majority of the large buildings of this late phase at Uxmal, the square doorways have a recessed frame, an element that gives both a touch of lightness and a distinctive appearance to the architecture of this city" (p.197). These formal observations, which can successfully stand on their own, are sometimes connected to interpretations of social use and

meaning, as here: “We should likewise note the especially elaborate volumetric concept of the access stairway to this building, which suggests the existence of ceremonies that required an extremely complex protocol” (p.187). There is a brief glossary and an excellent bibliography, including many references not mentioned in other publications.

Gendrop, Paul
Rio Bec, Chenes, and Puuc Styles in Maya Architecture. Translated by Robert D. Wood. Edited with a foreword by George F. Andrews. Lancaster, CA: Labyrinthos, 1998.

A translation of Gendrop’s 1983 volume *Los Estilos Río Bec, Chenés y Puuc en la arquitectura Maya* (México: Universidad Nacional Autónoma de México; Facultad de Arquitectura-Division de Estudios de Posgrado), separately listed and annotated in this web bibliography. In this new publication, the photographs are reproduced less clearly. In his foreword, George Andrews writes that Gendrop’s work “still stands as the most comprehensive effort to date to reveal those cultural interactions that culminated in the development of the Chenes and later Puuc architectural style . . . from their beginnings in the earlier Río Bec region” (p. viii).

Gendrop, Paul
“Tendencias estilísticas y secuencia evolutiva de la arquitectura Puuc Clásica”. Paper presented at the 17th Mesa Redonda, Sociedad Mexicana de Antropología. San Cristobal de las Casas, Chiapas, México, 1981.

Gillespie, Susan D.
“Maya ‘Nested Houses’: The Ritual Construction of Place”. *Beyond Kingship: Social and Material Reproduction in House Societies*, ed. Rosemary A. Joyce and Susan D. Gillespie: 135-160. Philadelphia, PA: University of Pennsylvania Press, 2000.

Greene Robertson, Merle, Edward B. Kurjack, and Ruben Maldonado C.
“Ballcourts of the Northern Maya Lowlands”. *The Mesoamerican Ballgame,* ed. Vernon Scasborough and David Wilcox. 1991.

H

Hansen, Eric F.
Ancient Maya Burnt-Lime Technology: Cultural Implications of Technological Styles. Ph.D. thesis, Archaeology, University of California, Los Angeles, 2000.

This 436 page dissertation reports on “the laboratory examination and analysis of samples of ancient Maya burnt-lime products (plasters, stuccoes and mortars), that were carried out in order to identify materials and processing sequences, or ‘technological styles’” (p. 1). The study focuses on “the transition from the Middle Preclassic to the Late Preclassic in the Northern Petén, Guatemala” (p. 4), though it has relevance for all Maya art and architecture. Although recognizing the complex

relationship between technology and society, Hansen argues that "the introduction of burnt-lime in the production of architecture is one of the more obvious archaeological indicators of increasingly complex sociopolitical organization in Mesoameria" (p. 2).

Hartung, Horst
Die Zeremonialzentren der Maya: Ein Beitrag zur Untersuchung der Planungsprinzipien. Graz, Austria: Akademische Druck und Verlagsanstalt, 1971.

A detailed and meticulously organized study of planning principles for Maya ceremonial centers. The author provides an excellent review of previous publications on the subject and describes his own research procedures. His study provides detailed planimetric characteristics of the 4 sites investigated: Piedras Negras, Yaxchilán, Uxmal, and Chichén Itzá, attempting to show the existence of characteristics adhered to in all 4 sites. Hartung lists 11 planning principles that these 4 sites have in common, providing an extensive list of these characteristics described for each site. There is a large plan and 34 photographs and diagrams of Uxmal.

Hohmann-Vogrin, Annegrete
"Unity in Space and Time – The Maya Architecture". *Maya: Divine Kings of the Rain Forest:* 194-215, ed. Nikolai *Grube*, assisted by Eva Eggebrecht and Matthias Seidel. Cologne: Könemann, 2001 (1st ed., *Maya; Gottkönige in Regenwald,* 2000.

Houston, Stephen, ed.
Function and Meaning in Classic Maya Architecture: A Symposium at Dumbarton Oaks, 7th and 8th October 1994. Washington, D.C.: Dumbarton Oaks Research Library and Collection, 1998.
On the web at:
http://www.doaks.org/HOFUctn.html
(accessed 2007 Nov. 27)

This symposium attempted to balance the emphasis of most recent Maya studies by giving "attention to the buildings themselves, rather than simply treating them as media for the investigation of other issues, as valuable as these might be" (Jeffrey Quilter, Preface, p. viii). 12 of the papers are published in this volume plus an introduction and conclusion by Stephen Houston. Because the volume focuses on classic Maya architecture, there are only 2 places in the book that deal directly with Puuc region examples: Johnson and Gonlin, pp. 164-165 continuing on p. 168; and Schele, pp. 480-488 and 501-504. Nevertheless, all of the issues discussed are applicable. Given the scarcity of interdisciplinary books focused on Maya architecture itself, this is an immensely rewarding publication.

The following publications are separately listed and annotated in this web bibliography:
Miller, Mary. "A Design for Meaning in Maya Architecture", pp. 187-222.
Schele, Linda. "The Iconography of Maya Architectural Facades during the Late Classic Period", 479-517.

K

Kowalski, Jeff Karl
"Painted Architecture in the Northern Maya Area". *Painted Architecture and Polychrome Monumental Sculpture in Mesoamerica. A Symposium at Dumbarton Oaks, 10th to 11th October 1981*: 51-90, color plates 3-5. Washington, D.C.: Dumbarton Oaks Research Library and Collection, 1985.

Kowalski reviews the evidence for paint on buildings in the Central and Northern Yucatan, from the Preclassic to the Terminal Classic periods. He examines evidence from "statements of early Spanish historians, records of early explorers, archaeological site reports, and a detailed examination of preserved paint on facades" (p.51). These different sources provide extensive evidence not only that many of these buildings were painted with a wide range of colors, but also for the range of treatments. Especially instructive evidence is provided by a mural painting at Chacmultun, including a detail of a building façade painted brilliant red and green (fig. 13, unfortunately grey-scale). For the Puuc Region, Kowalski specifies all or nearly all of the most notable color remains, with 6 illustrations from Uxmal, 1 from Sayil, and 1 from Labná. Most notable, perhaps, is the color photograph (plate 5) of the stucco head in the collection of the National Museum of the American Indian (Heye Collection), said to have come from the House of the Governor, Uxmal. This high quality, portrait-like head with modulated color suggests that our view of Puuc sculpture is severely limited by the tragic loss of nearly all stucco sculpture, much of which may have been figurative, realistic, and painted.

Photographs of "Paint and Plaster Remains" are reproduced on this web site:
http://academic.reed.edu/uxmal/galleries/thumbnails/other/Other-PP.htm

Kowalski, Jeff Karl
"The Puuc as seen from Uxmal". *Hidden among the Hills: Maya Archaeology of the Northwest Yucatan Peninsula*; *Acta Mesoamericana*, Vol. 7, ed. Hanns J. Prem: 93-120. First Maler Symposium, Bonn, 1990. Möckmühl, Germany: Verlag von Flemming, 1994 (2nd ed. 1999).

In this essay, Kowalski describes the cosmological meaning of the Nunnery Quadrangle at Uxmal and the political role of Uxmal in the Puuc region and Northern Yucatan. He concludes that the design of the Nunnery and its symbolic figures "represents a conscious decision on the part of the architect and royal patron to create an architectural complex that embodied the Maya universe in stone, and which would serve as a theatre for rituals providing divine sanction for the king of Uxmal" (p. 97). With meticulous references to the range of previous scholarship, he describers the symbolism of the overall design of the Nunnery and its sculpture. Kowalski considers that this interpretation of the Nunnery Quadrangle supports the idea that the ruler of Uxmal, Lord Chac, was sending an ideological message that Uxmal was "the primate religious and political capital for the Puuc region" (p. 95).

The small, gray-scale illustrations are adequate for the drawings and diagrams reproduced, though not for many of the photographs.

Kowalski, Jeff Karl
"Uxmal and the Puuc Zone: Monumental Architecture, Sculptured Facades and Political Power in the Terminal Classic Period". Peter Schmidt, Mercedes de la Garzia, and Enrique Nalda, eds*., Maya*, New York: Rizzoli, 1998 (identical to *Maya Civilization,* London: Thames and Hudson; and to *Los Mayas*, Milan: Conaculta; Instituto Nacional de Antropologia e Historia; all 1998): all 401-425.

One of the clearest and most informed brief reviews of Puuc architecture and society, balanced and up-to-date. There are sixteen Puuc region photographs within his essay and seven in other sections of this large volume. A number of these are exception two page spreads, one a remarkable four-page foldout of the Uxmal Nunnery, which, by surrounding the viewer, manages to convey a sense of the enveloping courtyard. Equally rare are three different views of the Queen of Uxmal sculpture, allowing one to compare sides and to see the nearly uniform width of the piece. (On page 416, the photo of the better preserved and restored left half of the Great Palace, Sayil, has been mistakenly reversed right-left, so that it appears to be the right half.)

Kowalski, Jeff Karl
"Uxmal como un ciudad real-ritual: el asenco y descenso de un estado segmentario en la region este de la zona Puuc". *Modelos de entidades politicos mayas; Primero Seminario de la Mesa Redonda de Palenque, Palenque, Chiapas, Mexico. Sept. 29-Oct. 1,* 1994, ed. Silvia Trejo: 161-182. Mexico, D.F.: Instituto Nacional de Antropologia e Historia, 1994.

Kowalski, Jeff Karl
"Uxmal y la zona Puuc: arquitectura monumental, fachadas esculpidas y poder politico en el periodo Clásico terminal". *Los Mayas*, ed. Peter Schmidt, M. de la Garza, and E. Nalda: 401-425. Milan: Conaculta: Instituto Nacional de Antropologia e Historia, 1999.

Kramer, Gerhardt
"Roof Combs in the Maya Area." *Maya Researh,* Vol. 2 (1935): 106-118.

Kubler, George
Art and Architecture of Ancient America. Harmondsworth & Baltimore: Pelican Books, 3rd ed. 1984 (1st ed. 1964; the 1990 reprint of the 3rd ed. includes additional bibliography).

The first edition of this book was a pioneering study, not only focusing on the objects of Pre-Columbian art and architecture, but also giving attention to their aesthetic aspects. Kubler notes that most study of Pre-Columbian culture has been conducted by anthropologists, who have had a "restrictive view of the cultural place of artistic activity" (p.37). Instead he writes "I have written about 'cultures' only when such topics were required to illuminate the objects, which are after all the principal proof of the 'culture's existence" (p.27). It is difficult to find in other publications a statement such as "Uxmal is . . . the least typical [of all Maya cities], having, like most masterpieces,

transcendent properties and qualities . . .” (p. 236). Much of the book is comparable to more recent archaeological literature, but even now it is rare to read a sentence such as this: “In the Nunnery, the arch is like a raw wound in the façade, incompletely thought out either as an entrance or as a break in the block” (p. 243). Whether or not we share this particular response, attention to the dynamic form of the architecture at Uxmal is necessary to understand what is distinctive about that people’s view of their world.

Kubler, George
“The Design of Space in Maya Architecture.” *Miscellánea Paul Rivet*: octogenario dicata: 515-531. México, D.F.: Universidad Nacional Autónoma de México, D.F.., 1961. Republished in *Studies in Ancient American and European Art*, listed and annotated below.

Kubler, George
“The Design of Space in Maya Architecture”. *Studies in Ancient American and European Art: The Collected Essays of George Kubler*, ed. Thomas Reese. New Haven: Yale University Press, 1985: 242-250.

A rare article examining the non-utilitarian, or symbolic function, of Maya architecture. Kubler describes the architectural form of ten forms prominent in ancient Maya architecture: roads, pyramidal platforms, precincts, geomantic groups, ball-game courts, buildings, open-cornered enclosures, closed-corner enclosures, multiple-storied buildings, and columnar spaces. Several examples at Uxmal are referred to. Kubler suggests a chronology of architectural development based on these different types of architectural space. Most telling, he calls attention to distinctive aspects of Maya architecture by contrasting it with European architecture. His final paragraph concludes (this brief summary is necessarily weak in comparison to the rich examples): “the principal formal aspects of Maya architecture concern the dominance of masses over the enclosed rooms, in a system of poorly differentiated functional building types, organized by striking differences of level and height, and deliberately composed in respect to the spatial environment generated between or among edifices” (p.249).

Kubler, George
Esthetic Recognition of Ancient Amerindian Art. New Haven: Yale University Press, 1991.

Although Kabah and Sayil are not mentioned and Uxmal and Labná appear on only one page, this book provides essential context for understanding early explorations, drawings, photographs, prints, and publications of these four sites. The main body of the text consists of brief accounts of some seventy persons, from Christopher Columbus (1451-1506) to Wendell Clark Bennett (1905-1953), organized chronologically. These include Brasseur, Charnay, Holmes, Stephens, Spinden, Prokouriakoff, Seler, and Morley, whose work and ideas are essential to understanding these four Puuc cities as they have deteriorated and been restored and as we experience them today. As specified in the title, Kubler’s primary concern is to trace changing attitudes in the ways in which ancient American objects have been viewed esthetically. Since the esthetic character of Maya art and architecture is more

difficult to describe than such things as construction or the reading of hieroglyphics, and since it is has not generally been considered an essential component of archaeology or sometimes even of anthropology, Kubler's contribution is especially revealing.

Kurjack, Edward B.
"Palace and Society in the Northern Lowlands". *Maya Palaces and Elite Residences: An Interdisciplinary Approach*, ed. Jessica Joyce Christie: Chapter 10, pp. 274-290. Austin: University of Texas Press, 2003.

Kurjack compares the "material, social, and ideological patterns" of elite with commoner dwellings. Based on his extensive understanding of stratified societies and their architecture, the author presents carefully reasoned, specific observations based on the physical remains of Maya sites in the Northern Lowlands. For the most part the article does not deal with individual sites, but there is one page in which Kurjack describes Labná as an example. He provides important warnings about the inadequacy of evidence, the collapse of so many buildings, the fact that buildings were regularly constructed on top of previous buildings so that our evidence is largely confined to the last stage of each building, and the fact that so little research has been carried out on "where people cooked, bathed, and disposed of wastes" (p.278). His conclusion notes that we will better understand "the substance of pre-Columbian Maya life" when "the combination of endeavors carried out in these elite dwellings" has been more adequately researched (p.288).

Kurjack, Edward B., Ruben Maldonado C., and Merle Greene Robertson
"Ballcourts of the Northern Maya Lowlands". *The Mesoamerican Ballgame*, ed. Vernon Scarborough and David R. Wilcox: 145-159. Tucson: University of Arizona Press, 1991.

Photographs of the Ballcourt at Uxmal are reproduced on this web site.
http://academic.reed.edu/uxmal/galleries/thumbnails/uxmal/uxmal-ballcourt.htm

After reviewing the evolution of various, partially conflicting, scholarly theories about the Pre-Columbian ball game, the authors survey northern Maya ballcourts, describing those at Chichén Itzá and Uxmal in detail. For Uxmal, they provide a detailed chronology of excavation discoveries and scholarly interpretations, aimed especially at examining the role of diffusion in Mesoamerica and "to elucidate the chronological position of the ballcourt at Uxmal" in relation to those at other near-by sites, especially the Great Ball Court at Chichén Itzá. They conclude that "Seriation of form, dimension, and height of these Puuc ballcourts suggests a sequence that approaches the characteristics of the Great Ball Court at Chichen Itzá. The Uxmal court appears transitional between the high-walled Great Court and lower structures at Sayil, Oxkintok, Tzum, and Xculoc' (p. 157).

L

Lamb, Weldon
"The Sun, Moon and Venus at Uxmal". *American Antiquity*, Vol. 45, No.1 (Jan. 1980): 79-86.

Available on the web through JSTOR:
http://www.jstor.org/view/00027316/ap010172/01a00100/0

Lamb describes many aspects of the East, West and North Buildings of the Nunnery Quadrangle to support his conclusion that they record specific Maya observations about the sun, moon, and Venus. He conducts a complex reading of the number of various parts of the East Building, especially the carved X pieces. He writes: "The most striking fact about the East Building façade is that the Xs of the 48 main bars total 584, a fine value for the Venus synodic mean of 583.92 days" (p.82).

It is reassuring to note that Lamb is aware that much of the architecture at Uxmal has been restored, so that such detailed number counts of today do not necessarily agree with the original designs. He writes: "Most likely the array of Xs that we are counting is true to the original. In late December 1841, John L. Stephens . . . described the East Building façade as virtually intact. Photos from the 1839 expedition of Frans Blom are on file at the Middle American Research Institute of Tulane University, and one (Figure 3) clearly shows [that] only the fourth set of bars, designated as D, had been badly damaged; a few other bars had been only slightly disturbed. Repairs were undertaken by the Instituto Nacional de Antropologia e Historia beginning in 1936" (p. 81).

Larios Villalta, Carlos Rudy
"Criterios de Restauración Arquitectónica en el Área Maya," a report to the Foundation for the Advancement of Mesoamerican Studies (FAMSI), 16 March 2001.
On the web at:
http://www.famsi.org/reports/99026es/index.html
(accessed 2007 June 1).
English translation by Alex Lomóaco at:
http://www.famsi.org/reports/99026/index.html
(accessed 2007 June 1).

This is the most extensive publication to date on the restoration of Maya architecture. A total of sixteen archaeological sites are illustrated, drawn primarily from Guatemala and Belize. Four sites in which the author was deeply involved are examined carefully for problems of degradation and protection. Notably, Larios Villalta presents Copán as a model, multidisciplinary project, based on the principle of anastilosis. Almost no attention is given to the Puuc Region (of 60 some photographs, there is one of Uxmal), but the same issues are applicable. Unfortunately, very little attention is given to Mexico, where his objection to the lack of official criteria do not equally apply. The report is clearly organized and written, with 5 figures and 69 carefully taken photographs, all keyed to specific descriptions in the text. Noting the lack of official

criteria for restoration in the Maya area, the author attempts to provide some fundamental criteria. He attempts to help coordinate the work of the various disciplines involved in restoration projects. Larios defines a number of often-confused terms and discusses the criteria for conservation. The most important section of the report is an examination of restoration methods, taken up in the order in which they are faced in a Maya restoration project. In each case he provides revealing examples, clearly evaluated and illustrated, a most instructive guide for students of archaeology and conservation.

Loten, Stanley, and David M. Pendergast
A Lexicon for Maya Architecture. Monograph 8. Toronto, Canada: Royal Ontario Museum, 1984.

M

Mariscal, Fererico E.
Estudio Arquitectónico de las Ruinas Mayas: Yucatan y Campeche. Contribucion de Mexico al XXIII Congreso de Americanistas. Secretaría de Educación Pública. Mexico: Talleres Graficos de la Nacion, 1928.

This was the first publication explicitly arguing the importance of detailed studies of a wide range of Maya architecture, carefully measured and drawn to exact scale, in order to make possible comparison among similar features at different sites, thereby establishing a common ground for analysis. Mariscal reviews the significant contributions of previous scholars, especially those who have carried out detailed measurements and drawings, most notably Charles Holmes, whom he credits with establishing the basis for such research. However, Mariscal states that they and others have not had a sufficient body of this type of comparative information on which to base their theories.

He argues for continuing studies of this type each year, by Mexican architects and architectural students, to build a continually expanding body of such information for the pre-Hispanic architecture of their country, which at one point he praises as (in translation) “not only the most important in America, but also the most notable in the history of the world” (p. 4).

Mariscal then presents descriptions and photographs of 9 Maya sites in the Yucatan and Campeche, with text description, photographs and architectural elevations, cross-sections, and plans, with measurements, all by the author. A most unusual detail is that, for each site, he includes the day and time at which he arrived and left the site; all in March 1927. No doubt many scholars and nearly all editors will consider this excessive, but the information can be instructive and indicates the specificity of his recording. For Uxmal there are 11 photographs and 1 page of measured drawing (photograph 51 is mislabeled Chichén Itza); for Kabah 4 photographs and 2 pages of

measured drawing; for Sayil 6 photographs and 1 page of measured drawings; for Labná there are 14 photographs and 2 pages of measured drawings. The text descriptions include occasional astute observations.

There are 2 brief but especially important final sections, exemplifying the type of comparative study the author proposes. One section compares doorways, the other portiocos and columns. For each Mariscal provides a page of drawings from various sites, drawn to scale with measurements, providing comparison of (in translation) "above all the proportions of these elements that are fundamental in architecture" (p.101). The page of text accompanying each of these sections presents specific observations resulting from this comparison.

Regarding doorways, he concludes that (in translation): "it can be noted that, against what has been affirmed, there is a great variety in the proportions of the Mayan doors: there are those like that of the Adivino, that form a very beautiful rectangle; there are those almost square, like that of the Codz-Poop of Kabah; there are those extremely long, like the interior of Etzna, in Tixmucuy, and simply slim, like that of the exterior of Chacbolay and one in Chacmultun; lastly, there are some with inclined jambs, forming a trapezoidal opening, like those of Labná, in the Arch and in the Temple, but the majority have vertical jambs".

Regarding porticos and series of openings separated by columns and pillars, he concludes that (in translation) "from the most grandiose that corresponds to the Building Number 1 of Chacmultun, to the smallest and most robust of the lower floor of the Palace of Zayil, one can note that there is a delicacy of proportions and a great harmony in the disposition of the horizontal bands in which the whole building is divided, in relation with the inner-columns".

Marquina, Ignacio
Estudio Arquitectonico Comparativo de los Monumentos Arqueologicos de Mexico. Contribucion de México al XXIII Congreso de Americanistas. Secretaria de Educacion Publica. México: Talleres Graficos de la Nacion, 1928.

An oversize, horizontal volume, presenting a comprehensive account of Mexican archaeological monuments at the time, with occasional comparisons of sites in different regions of Mexico. For a three-long page comparisons with other regions, the author uses Chichen Itzá and Uxmal to represent Northern Yucatán. When describing individual sites, Marquina devotes 3+ pages of text to Uxmal, 2 pages to Labná, 1 ½ to Kabah, and 2 paragraphs to Sayil. These include descriptions with some measurements. But, of greater importance than the text are the large, full-page ground plans, diagrams, and especially the watercolor reconstructions.

For Uxmal, there is a ground plan of the site, copied from Holmes (1895); a ground plan of the East Building of the Nunnery Quadrangle; an elevation and ground plan of the Governor's Palace; and a large ground plan of the Turtles. In addition, for the Turtles, there are two large pages of various drawings. These include an elevation and cut-away elevation of the main façade, and an elevation and cut-away elevation of the end façade, all with unusually detailed measurements. Most importantly, there are two

large watercolor drawings by Marquina, presenting two rare attempts to reconstruct the color of two facades. One shows the West Building of the Nunnery, northern section of the main façade. The other shows the main façade of the Governor's Palace, the section surrounding the southern archway, most strikingly with the infill removed so that one sees straight through the open archway to trees and sky beyond.

For Labná, there is a groundplan of the site and 2 full pages of the Labná arch: small elevations of the southeast and northwest facades with a small ground plan, and a large elevation of the southeast façade. For Kabah, there is a small groundplan and a small elevation and ground plan of what appears to be the Temple of the Columns (unspecified). For Sayil, there is a full-page ground plan of the Palace with elevation of the main façade, and, again most importantly, a color reconstruction watercolor drawing of a façade. For Sayil, the color reconstruction drawing shows the much admired mid-level of the façade of the Great Palace, west side, central and eastern sections.

Marus, Joyce
"On the Nature of the Mesoamerican City". *Prehistoric Settlement Patterns: Essays in Honour of Gordon R. Wiley*, ed. Evon Z. Vogt and Richard M. Leventhal: 195-242. Albuquerque: University of New Mexico Press, 1983 (anthologized in *The Ancient Civilizations of Mesoamerica: A Reader*, ed. Michael E. Smith and Marilyn A. Masson; Oxford: Blackwell, 2000; Chapter 3).

An exceptional synthesis of the form and structure of Mesoamerican cities, with 21 diagrams. Provides an invaluable basis for considering the individuality of any Mesoamerican city. Includes an extensive bibliography.

Maudslay, A. P.
Biología Centrali-Americana, Archaeology. 1 vol. Text, 4 vols. Illus. 1889-1902.

The classic publication by one of the greatest early Maya scholars, including carefully measured drawings and illustrations of buildings. Regrettably, Maudslay never reached the Puuc Region, so Puuc sites are not dealt with in his publication.

McGuire, Randall H., and Michael B. Schiffer
"A Theory of Architectural Design". *Journal of Anthropological Archaeology.* Vol. 2 (1983): 277-303.

Megaloni, Diana, *et al.*
"Studies on the Mayan Mortar Techniques". Material Research Society Symposium Material. .Pittsburgh: Matierial Research Society. Vol. 352: 483-489. 1995.

Michelet, Dominique, ed.
Arquitectura y arqueologia: Metodolgias en la cronologia de Yucatán: México, D.F.: Centre d'Études Mexicaines et Centramericaines, 1985.

Miller, Mary E.
"A Design for Meaning in Maya Architecture". *Function and Meaning in Classic Maya Architecture: A Symposium at Dumbarton Oaks, 7th and 8th October 1994,* ed. Stephen D. Houston: 187-222. Washington, D.C.: Dumbarton Oaks Research Library and Collection, 1998.
On the web at:
http://www.doaks.org/ClassicMaya/maya05.pdf
(accessed 2007 Nov. 27)

This article consists of two parts. The longer, second part describes the architecture at Palenque, Yaxchilan, Tonina, and other western Maya sites, making extensive use of images. The briefer first part describes Maya architecture more broadly, providing a basis for the study of any Maya architecture. It is essential reading for understanding the underlying meaning of the architecture of Uxmal, Kabah, Sayil, and Labná.

Citing Kubler's identification of "several key forms: among others, the road/path, the platform, the precinct, the ballcourt, and what he called the building and its various types", Miller notes that "the void is key to Maya architecture, the space where meaning enters, anchored by surrounding mass" (p.187). She affirms Thompson's assertion that "Maya architecture . . . function[s] as backdrop, with public iconography framing repeated public ritual", adding "we can also go a step further, for the architecture confirms ritual and makes it present and living even when it is not being performed" (p.192).

Most importantly, Miller adds to Kubler's three fundamental elements (the platform, the hut, and the path) a fourth element, steps. In a key paragraph, she writes:
"Recognizing the specific function of stairs allows us to isolate the step as an independent architectural feature, manipulated by the Maya and frequently incorporated into larger assemblages and frequently the formal element bridging the agglutinative hut-platform-path elements and the more geometric ballcourt. Give its size, disposition, ability to elaborate hierarchies and accommodate numerous participants, the step is also the most specifically theatrical of all Maya architectural forms. Furthermore, despite the hostile implications that we may read into the making of such steps, their creation may also have indicated the end of active hostilities and a return to economic well-being—a well-being even promoted by the presence of renewed architectural and artistic commissions" (p 193).

Miller, Mary Ellen
Maya Art and Architecture. London and New York: Thames and Hudson, 1999.

Although a paperback of only 240 pages, this is the best brief introduction to Maya art and architecture, providing a comprehensive, up-to-date interpretation of its character and meaning. Includes an instructive nine page history of Maya art studies. Sixteen pages of text and nine illustrations are devoted to Uxmal, Kabah, and Labná. Small but high quality photographs and diagrams.

Many books on the Maya describe characteristics of the architecture but avoid connecting these with visual quality. But this is surely to miss one of the most

important characteristics that distinguishes Maya cities from each other and allows us to share to some extent the experiences of the people we are attempting to understand. Miller is one of the few to connect physical characteristics and visual effect with aesthetic quality. She writes: “Puuc architects recognized the monotony of regularly spaced doorways” and “The builders of the House of the Governor took all the lessons of the Nunnery and used them in a single structure, composing what may be the single most beautiful building of ancient America” (p. 59). Her description of the Governor’s Palace wonderfully joins physical characteristics with visual effect and viewer response.

Miller, Mary E., and Stephen D. Houston
“The Classic Maya Ballgame and Its Architectural Setting: A Study in Relations between Text and Image”. *RES: Anthropology and Aethetics.* Vol. 14 (1987): 47-66.

Mills, Lawrence.
“A Study of Carved Columns Associated with Puuc Architecture: A Progress Report”. *Arquitectura y Arqueología: metodologías en la cronología de Yucatán* : 50-55. Collection d’Etudes Mesoamericaines Serie II-8. México, D.F.: Centre d’Etudes Mexicaines et Centroaméricaines, 1985.

Molina-Montes, Augusto
“Conservation and Restoration”. *The Oxford Encyclopedia of Mesoamerican Cultures: The Civilizations of Mexico and Central American*. Vol. 1: 257-259. Davíd Carrasco, editor in chief. 3 vols. Oxford University Press, 2001.

In two pages of text, the author provides a superb historical review of the changing approaches to conservation of archaeological sites in Mexico. The article includes clarifying distinctions among five frequently confused terms “as they are understood by the majority of archaeologists and conservators in Mesoamerica”:

“Conservation: all activities directed toward the safeguard of cultural heritage and its values in order to transmit them to the future. It includes actions such as identification, documentation protection, and restoration.
Restoration: activities or processes physically conducted on the cultural object with the purpose of safeguarding and maintaining it and prolonging its existence. Restoration has several aspects, the following among others:
Reintegration: restitution of original but dismembered parts to their original position and function.
Integration: addition of clearly recognizable elements to ensure the conservation of the object or to make its form understandable.
Reconstruction: reproduction of parts or the whole of a cultural object with new material similar or identical to the original.”

Molina-Montes then provides a chronology of the development of conservation in Mexico and Central American Countries, noting especially the important 1939 founding of the Instituto Nacional de Antropología e Historia (INAH) “which coordinates all archaeological excavation and conservation in Mexico.” She writes that “as the archaeological projects increased in number and extent, the quality of the

restoration work decreased considerably. From the 1940s to the early 1970s, undue and exaggerated importance was given to the massive reconstruction of pre-Hispanic architecture . . . reducing the factual and historical value of the restored buildings." She notes a number of sites, including Uxmal, at which "cases of undue, exaggerated reconstruction occurred during this period. . .", listing 4 possible motivations. She then describes the reaction against massive reconstruction and the landmark 1973 meeting of the First Latin American Regional Seminary on Conservation and Restoration in Mexico City, which agreed to "condemn the proliferation of works that, are removed from the spirit of Venice, falsify and annul values of the monuments . . . ." (p. 258). She then describes the much better balance that has gradually been achieved among archeological research, conservation, tourism, and other valid interests.

Molina-Montes, Augusto

"Ruz Lhuiller, Alberto". *The Oxford Encyclopedia of Mesoamerican Cultures: The Civilizations of Mexico and Central American*. Vol. 1: 98-100. Davíd Carrasco, editor in chief. 3 vols. Oxford University Press, 2001.

A description of the career of one of the leading archaeologist of Maya culture of his time, his appointment as Mexico's director of Maya archaeology, then position on the faculty of the Universidad Nacional, where he was founder and first director of the University's Centro de Estudios Mayas, and final three years as director of the Museo Nacional de Antropologia. Molina-Montes notes that his major research was carried out at Palenque (including the famous 1952 discovery of the tomb of King Pacal), where "he and his multidisciplinary team carried out vast and impressive restoration and conservation work". Immediately previous, Ruz Lhuillier had "conducted extensive excavations and major conservation work at Uxmal, presenting important revisions to the chronology of the site, and clarifying the problems related to central Mexican influences in this area". Importantly, Molina-Montes states that "he firmly believed that the splendid architectural monuments of the Maya should be 'reconstructed' in order to give back to the people 'their patrimony, the cultural heritage of which they have been disposed' (all quotes p. 99).

Morris, Earl H.

The Temple of the Warriors: The Adventure of Exploring and Restoring a Masterpiece of Native American Architecture in the Ruined Maya City of Chichen Itzá, Yucatan. New York: Charles Scribner's Sons, 1931.

Based on the study and restoration of the Temple of the Warriors at Chichen Itzá, this informative report includes a unique chapter on the step-by-step procedure by which the builders of Chichen Itzá, and in all likelihood Puuc region cities, constructed their major buildings. Based on his detailed observations, the author proposes a series of procedures and uses of materials used by the Maya architects. He distinguished between procedures carried out at the quarry, those carried out by craftsmen off-site, and those carried out by masons and architects at the building site itself. Although written over 75 years ago, this is the most informative description of these procedures I have read.

Of special interest, Morris describes in detail the method he has observed by which the Maya produce lime for the production of mortar and plaster, essential ingredients for their art and architecture. He writes that such a description "will recast with close fidelity the procedure followed in this particular ramification of the building trade in the days before the conquest" (p. 235). His 7-page description, including 4 photos, is a remarkably informative description of every stage of the process. He includes unique descriptions such as:
"The better workmen of to-day say that the mortar now used is not nearly as good as it could be made. In the old days when there was less hurry, the *maestros* took great pains in its preparation. It was thoroughly stirred and remoistened once a day for two weeks, or longer if needed for floor or roof construction. These latter features, which astound one with their hardness considering that the cementing material is only lime, owe their hardness to two things. They were tamped for hours on end with wooden mauls, until they were poreless and compact as stone. Moreover, a special liquid was used for remoistening the surface paste as it was being tamped and finally troweled. The bark of the *chocom* tree was stripped off and put to soak in vats. After standing for a number of days the water had drawn enough of the soluble chemicals from the bark to fulfill the intended function. Lime moistened with it takes a marvelous polish under the trowel, and is practically impervious to water. It turns a bright red, and does not check under exposure to the sun" (pp. 239-240).

Although Morris's detailed descriptions provide the unique value of his book, it is worth noting that he, like others, concludes that "burning of the lime for mortar and plaster called for a quantity of fuel [wood] that is staggering in its immensity" (p. 235), and that "it is quite impossible to form an adequate conception of the amount of labor expended in the construction of one of the ancient buildings" (p. 240).

O

O'Brien, Patricia J. and Hanne D. Christiansen
"An Ancient Maya Measurement System". *American Antiquity.* Vol. 51, No. 1 (Jan. 1986): 136-151.

This was the first article to examine possible measuring systems used by the Maya in the layout and design of their architecture. For this study, Uxmal, Kabah, and Chichen Itzá were studied. The authors note that they "assumed that a precise measurement system was used by the builders of Puuc style buildings because their complex facades required extensive planning" (p.140). New measurements of selected buildings were taken, avoiding restorations where possible. The authors also examined references to measurements in the Mayan language and historical documents. Based on this and other evidence, they propose a tentative measurement system (p. 149).

P

Palacios, Enrique Juan
"Guía arqueológica de Chacmultún, Labná, Sayil, Kabah, Uxmal, Chichén-itzá y Tulum". *Enciclopedia Yucatanense*, Vol. 2, *Epoca Maya*: 405-553, ed. Carlos A. Echánove Trujillo. Oficial del Gobierno de Yucatán, México, 1945.

A series of 8 sections on individual sites. There are 32 pages on Uxmal, 5 on Kabah, 7 on Sayil, and 13 on Labná. These are well illustrated, though mostly with small, weak, brown-tone photographs. Notable are photographs of models of the Nunnery Quadrangle, Pyramid of the Magician, and Governor's House, Uxmal; Palace, Kabah; and Arch and another structure at Labná. Several other photographs are valuable in showing portions of the architecture before restoration.

Peabody Museum of Archaeology and Ethnology, Harvard University: Collections Online
On the web at:
http://www.peabody.harvard.edu/col/default.cfm
(accessed 2007 Nov. 27)

This is one of the two most extensive, publically available collections of early photographs of Uxmal, Kabah, Sayil, and Labná, either in print or on the web. The other equally large collection is also on the web, hosted by ARTstor (which see), which earlier this month posted on their web site early photographs from the Carnegie Institution of Washington Maya Excavations, which are now also housed at the Peabody.

Some of the same photographs appear on both web sites. These include distant views, views of individual buildings, including lesser known structures, interiors, many details of collapsing sections and individual pieces of fallen architectural sculpture, reliefs, etc. Both sets of photographs show structures as discovered, some uncovered, and some at various early stages of restoration.

The main differences are that the ARTstor images can be opened larger and at higher resolution, allowing viewers to examine the images in greater detail, a significant advantage for photographs of these elaborate and much restored Maya sites. Also, as of December 2007, the catalogue information posted with the ARTstor images is much more extensive than that on the Peabody site. However, ARTstor images are only available at subscribing institutions in the United States, whereas the Peabody images can be viewed by anyone with Internet connection anywhere in the world.

On the Peabody web site, there are 426 images of Uxmal, 347 of Kabah, 197 of Sayil, and 374 of Labná. The images can be opened mid-size, ca. 640 x 460 ppi. Nearly all appear to be from the very late 19th and early 20th centuries, though there are also

recent color photographs of some artifacts. Not surprisingly, some of the photographs are badly faded, though most are in remarkably good condition.

Pech Cassanova, Jorge, and Celia Pedrero
Guide for Uxmal and the Region Puuc. Merida: Editorial Dante (paperback), 1997.

An especially clearly written brief tourist guide to the Puuc region. Following a balanced, brief introduction to the region, there are 34 short pages on Uxmal, and 4 each on Kabah, Sayil, and Labná. The photograph of Uxmal on the back cover is reversed left-right.

Pollock, H. E. D.
"Architecture of the Maya Lowlands". *Archaeology of Southern Mesoamerica,* Part 1, vol. ed. Gordon R. Willey: 378-461. Vol. 2 of *Handbook of Middle American Indians*, gen. ed. Robert Wauchope. Austin, Texas: University of Texas
Press, 1965.

This orderly survey presents a comprehensive description of Maya architecture, tracing its development and change, considered under the following categories: city planning; building materials; quarrying, stonecutting and transportation; construction and masonry; types and functions of buildings; and architectural styles. Pollock attempts to describe overall characteristics of Maya architecture, then to draw distinctions and exceptions. He notes the emphasis on the masses of platforms, pyramids, and monumental buildings, their grouping and relation of different levels. He calls attention to our dependence on the classic and late classic remains, since most monumental structures were constructed in successive stages, on top of each other, and, at least by 1965, very little excavation had been carried out. He notes also how little we know of such things as the planning that preceded the erection of Maya buildings. The Puuc region is one of ten Maya areas included. Pollock calls attention to the unusual density of ruins in the Puuc and to the special difficulty of estimating the limits of Puuc cities. In a separate description of the Puuc style, that includes five restoration drawings of Puuc buildings by Proskouriakoff (pages 429-433), Pollock provides a perceptive observation, usual in Maya studies: "One's first impression of this architecture might be to notice a sharpness of line, a crisp quality, that for the most part we have not seen elsewhere. This is true not only of the simple lines of the substructural terraces, of the sharply relieved moldings and generally level roof lines, but of much of the decoration which is executed in precisely carved stone covered by only a thin coat of plaster" (p.431).

Pollock, H. E. D.
"Sources and Methods in the Study of Maya Architecture". *The Maya and Their Neighbors,* ed. Clarence L. Hay, *et al*. Chapter XII, 179-201. New York: Appleton-Century, 1940.

A chronological account of the study of Maya architecture, beginning with 16th century references. There are sections on the 18th and 19th centuries, the "Modern Period", and 1924-1939. These describe the research and writings of the major explorers, archaeologists, and other scholars. Pollock discusses the methods used in the study

of Maya architecture, the aims of such study, and the needs and problems of future research.

Pollock, Harry E. D., et al.
Arte Maya: Uxmal, Sayil, Labna, etc. México: Editora del Sureste, 1982.

Potter, David Farington
Maya Architectural Style in Central Yucatan. Ph.D. Dissertation, 1973. Department of Anthropology, Tulane University, New Orleans. Ann Arbor, Michigan: University Microfilms, 1973.

A study of the architectural style of the Central Yucatan, arguing for its "internal coherence and its characteristic differences from other regional styles" (p. 1). The study focuses especially on Becan, where the author worked during the 1970 and 1971 field seasons. The portions especially relevant to this web site are sections on Uxmal (pp. 256-260) and the Puuc architectural style (pp. 298-310). The descriptions of buildings at Uxmal are brief and based almost entirely on Pollock. In the section on Puuc style, Potter reviews previous publications on the Puuc region, noting the difficulties posed by terminology and lack of systematic study.

Potter writes that "the most obvious distinction between the Puuc and Central Yucatan styles is in the character of the masonry. Puuc buildings are essential concrete construction faced with a veneer of 'thin, beautifully dressed and perfectly squared blocks of stone' (E. W. Andrews, IV, 1965), (p. 307). In the final analysis, the function of this facing was not at all structural, but it provided a form for the concrete during the construction period and a serviceable and decorative surface thereafter". This common, oversimplified concept, and several overgeneralized sentences that follow are not surprising for a 1973 thesis. Potter then considers the geographical range of Puuc style buildings, "Derivations of the Puuc style", and "Stylistic comparison with Central Yucatan".

Proskouriakoff, Tatiana
An Album of Maya Architecture. Carnegie Institution of Washington, Publication 558. Washington, D.C.: Carnegie Institution of Washington, 1946 (republished in paperback by the University of Oklahoma Press, Norman, 1963).

Full-page reproductions of thirty-six gray-scale watercolor drawings (in the collection of the Peabody Museum, Harvard) of major, surviving Maya buildings and parts of cities, presenting Proskouiakoff's proposed reconstructions "shown in perspective plotted from the most accurate measurements available." Small, accompanying line drawings show the remains as they existed in the 1940s, distinguishing among "parts of a building which still stands substantially in their original position, . . . ruined or buried features which have a counterpart elsewhere on the same structure, [and] fallen elements whose approximate original position can be reasonably deduced from the general nature of the design." "Whatever is less certain and has been restored merely by analogy with other buildings at the same site or by surmise based on

habitual building practices of the Maya, is either entirely omitted . . . or is indicated lightly by the outline of existing debris."

In addition to a general introduction to Maya architecture, there are comments accompanying each drawing. The drawings include the Monjas Quadrangle, Palace of the Governors, and Palomas Group at Uxmal; Palace Group at Kabah; Palace at Sayil; and Palace and Portal Vault at Labná. In these she provides reasons for some of the details of her reconstructions.

In a few instances she does not avoid aesthetic judgments. In the most extended example, she writes of the Codz Poop at Kabah:
"In view of the tremendous amount of skilled labor involved in carving so many individual pieces of stone, the artistic effect achieved is disappointing, and one regrets that the originality of the designer was not equal to the craftsmanship of the artisan. The highly cultured and pious aristocracy of the Maya Old Empire would have scorned such baroque ostentation, the product of a later, more secular, civilization seeking to impress the populace with a spectacular display of technical skill. There is some indication that the building was designed to have two stories. . . . Perhaps the builders themselves were discouraged by the results of their efforts by the time the mask façade was completed, and terminated the extravagance by substituting a simple roof comb for the intended second story. This change of plan may be in a measure responsible for the ineffectual pretensions of this building, which was obviously meant to dominate the composition of the group." For a contrasting aesthetic judgment, see Stierlin).

Proskouriakoff, Tatiana

"Civic and Religious Structures of Mayapan". *Mayapan, Yucatan, Mexico*: 87-164. H.E.D. Pollock, Ralph L. Roys, T. Proskouriakoff, and A. Leyard Smith. Carnegie Institution of Washington, Publication 619. Washington, D.C., 1962

this article provide the clearest depiction and descriptive names available for the large variety of stones used in Puuc architecture (pp. 146-153, unnumbered). Among others, these include boot-shaped vault stones, wall stone, coping stone, molding stone, and gutter spout from roof (fig. 4); eyepiece of masks, fillets of mask headdresses, scroll elements, mask earplug, interlacing strand motifs, dentate squares, S-scroll elements, mat or grid motif, cross element, dentate triangles from dentate zigzag motif, stepped triangle, fret, guilloche or bead-and-fringe motif, dentate elements used diagonally in zigzag, serpent head, spool elements, nose of mask, fret elements, guilloche, mouth elements of serpent motif, and rosettes (fig. 5); serpent tails, serpent heads, and human hands of monster (fig. 6); and serpent head, tenoned serpent heads of Toltec type, serpent-eye elements, serpent-mouth elements, stucco figures on columns, stucco monster at foot of serpent column, stucco figure of jaguar, and stucco statue (fig. 7). These drawings are detailed and remarkably clear, invaluable.

Proskouriakoff, Tatiana
"Sculpture and Major Arts of the Maya Lowlands". *Archaeology of Southern Mesoamerica*, Part One, ed. Gordon R. Wiley: 469-497. *Handbook of Middle American Indians*, Vol. 2, general ed. Robert Wauchope. Austin, Texas: University of Texas Press, 1965.

Proskouriakoff, Tatiana
"Some Non-Classic Traits in the Sculpture of Yucatan". *The Civilization of Ancient America: Selected Papers of the XXIXth International Congress of Americanists*., ed. Sol Tax: 108-118. Chicago: University of Chicago Press, 1951.

> "Yucatan sculpture is essentially heterogeneous and seems to represent an imperfect fusion of several independence styles" (p. 108). Proskouriakoff claims that in the Yucatan there was "a wider range of influences than is usually given consideration" and that "even before the period of Toltec dominance Yucatan was culturally less stable than the southern Lowlands and was probably subjected to more than one significant wave of immigration" (p. 118).
>
> In this she emphasizes a contrast between the essentially single, coherent development of the Classic Maya and that of the Yucatan. She also argues that the Yucatan style, with its diverse characteristics, cannot be considered derived from the Old Empire. Thus, she urges that "we disassociate the term "Classic Maya" from the Puuc, Chenes, and Rio-Bec remains" (p. 108).

Puleston, Dennis E.
"An Experimental Approach to the Function of Classic Maya Chultuns". *American Antiquity*. 1971: 322-335.

> This article presents an extended review of the various theories regarding the use of chultunes by the Maya during the Classic Period. The author states that there is general agreement that the deep, bottle-shaped, cistern-like chultunes in the northern Yucatan were used for rainwater storage. However, he states that the smaller, lateral-chambered chultunes of the southern lowlands, thought first also to have been used for water storage, are now generally thought to have been used for food storage. However, by running experiments storing food in comparable chultunes, he has determined that they are unsuitable for the storage of most foods; the hardseed of the ramon, which remained edible for 13 months, being an important exception. He has also concluded that "chambers constructed beneath platforms in the northern lowlands may have been used for the storage of maize" (p. 322). One page contains comparative diagrams of chultunes and a burial vault from the Maya lowlands. Puleson states that chultunes at Uxmal, Kabah, and Sayil have been re-plastered inside, their circular catchment-basins restored, allowed to fill with rainwater, and are currently in use.

R

Ranney, Edward
Stonework of the Maya. Albuquerque: University of New Mexico Pres, 1974.

The author-photographer's dramatic, high-contrast, black-white photographs demonstrate his claim that "a photograph, like an archaeological artifact itself, has the unique potential for providing an intensely evocative expression of an ancient culture" (p. viii). There are 76 photographs of 11 sites, 13 photos of which are of Uxmal, Kabah, Sayil, and Labná.

Rapoport, Amos
The Meaning of the Built Environment: A Nonverbal Communication Approach. 2nd ed. Tucson: University of Arizona Press, 1990.

Ringle, William
"An Application of GIS Modeling to Maya Settlement Pattern Studies." *NASA/ASEE Summer Faculty Fellowship Program Final Administrative Report*, ed. James E. Miller, Armond Joyce, and Eddie Hildreth: 108-119. Bay St. Louis, Mississippi: Stennis Space Center and the University of Southern Mississippi, 1998.

Robertson, Merle Green (see also Greene, Merle)
"Stucco". *The Oxford Encyclopedia of Mesoamerican Cultures: The Civilizations of Mexico and Central Amderica.* Vol. 1: 170-172. Ed. David Carrasco. 3 vols. Oxford University Press, 2001.

Although the Puuc region is not mentioned, this superb description of the nature and importance of stucco (describing especially Palenque) is applicable to all Mesoamerica. As Robertson notes, "all Mesoamerican cultures used stucco . . . in everything from floor surfaces to sculptured figures to fresco paintings" (p. 170). Of immense importance, she writes that "one of the contributing factors in the collapse of the Maya may have been the denudation of vast landscapes of timber that were used for the fires in burning limestone to make stucco for thousands of buildings, as well as sculptured art" (p. 170).

Roys, Ralph L.
The Engineering Knowledge of the Maya. Carnegie Institution of Washington, Pub. 436, Contri. 6. Washington, D.C.: Carnegie Institution of Washington, 1934.

Although now 74 years old, this is still the most comprehensive, in-depth analysis of the mechanical and structural principles used in all Maya areas, as visible in their architectural remains. Roys takes up in systematic order the subjects of stability, strength of materials used, wooden vault members, stonework, and many other features (wooden and stone lintels, columns, cornices, inverted step at spring of vault, upper facades, vault capstones, roofs, roofcombs, quality of foundations, end walls and partitions, dry rubble masonry, arches and passageways, East Coast

architecture, use of the true arch on the East Coast, ruins of brick and mortar at Comalcalco, flatstone work at Cobá, receding upper wall faces at Palenque). He deals with all Maya areas, noting changes over time and difference among various centers. All of his discussion is relevant to an understanding of Puuc architecture; moreover, he includes examples from Chichen Itzá and a few from Uxmal and Labná. Roys convincingly distinguishes between the structural principles of European and other "old world" architecture, based on stone-upon-stone, and the structural principles of Maya architecture, based on concrete. He notes the evolution of Maya architecture from block masonry to concrete construction, and the Maya understanding of concrete and the gradual improvement in its quality which they achieved. Directly correlated with the text, there are 27 highly instructive diagrams and 3 photos.

Of special note for Puuc architecture, the author calls attention to the exceptionally high quality of lime concrete and skill in its use achieved in the northern Yucatan, and alterations to the shaping of stones to best serve the principles of concrete structure. He writes: "beyond all doubt the Maya of northern Yucatan should be credited with the invention of an individual technique of original character, which was in many respects a distinct cultural advance beyond the masonry of their forefathers" (p.65). At various points Roys takes up the still not completely solved question of the methods used in constructing concrete vaults, raising doubts about various prior proposals, such as Spinden's suggestion that Maya vaults may have been built over wooden forming.

Even with such an exemplary examination of the issues, some questions remain unanswered. With Puuc architecture at least, with the facing stones not self supporting, thus dependent on the concrete mass for support, if there were no temporary interior support structure each layer of concrete would have had to be relatively shallow in order to apply the facing stones with such perfection. But how long would it have been necessary to wait for each of these layers to set before proceeding to the next layer? And how, given this need, would sufficient cohesion have been developed within the concrete mass? To achieve the perfection in the shaping of large vaults, such as those at Uxmal, some interior support would seem to have been necessary.

I agree entirely with Roys that the acceptance of wooden framing as the form of construction for Late Classic and Terminal Classic vaults in the Puuc Region, when facing stones were very nearly veneer, is almost untenable. Each interior facing stone would have required individual support in order to achieve such perfection. The use of temporary earthworks as interior forms is a more viable theory, though the method used for constructing ca. 800-950 AD Puuc vaults is still an open question,

For major publications on engineering and construction in the Puuc Region, see George Andrews, *Architecture of the Puuc Region and Northern Plains Areas,* 1995, and Justine Cecilia Staneko, *Peeking at the Puuc: New Views on the Design, Engineering, and Construction of Ancient Maya Architecture from Yucatan and Northern Campeche, Mexico,* 1996/2000.

Ruppert, Karl
"A Special Assemblage of Maya Structures". *The Maya and their Neighbors,* ed. Clarence L. Hay and others. New York: Appleton-Century, 1940. Pp. 222-231.

Ruppert, K., and A. L. Smith
"House Types in the Environs of Mayapan and at Uxmal, Kabah, Sayil, Chichen Itza and Chacchob". *Carnegie Institution pf Washington, Current Reports.* No. 39. Washington, D.C.: Carnegie Institution pf Washington, 1957.

S

Scarborough, Vernon L.
"Courting the Maya Lowlands: a Study in Prehispanic Ballgame Architecture". *International Symposium on the Mesoamerican Ballgame* : 184-248. L. Scarborough and D. Wilcox, eds. Tucson: University of Arizona Press, 1991.

Schele, Linda
"The Iconography of Maya Architectural Facades during the Late Classic Period". *Function and Meaning in Classic Maya Architecture; A Symposium at Dumbarton Oaks, 7th and 8th October 1994,* ed. Stephen D. Houston: 479-517. Washington, D.C.: Dumbarton Oaks Research Library and Collection, 1988.
On the web as a pdf at:
http://www.doaks.org/ClassicMaya/maya012.pdf
(accessed 2007 Nov. 27)

A study of the modes of decoration used to display symbolic and narrative information on Maya buildings, noting variations by date and region. Schele devotes her chapter to mask programs, which she claims are "the most widespread of all architectural decoration in lowland Maya architecture" (p. 481). She describes a range of symbolic meanings associated with these mask programs, including: mountains, sky dragons, Itzamna, creation imagery, Na Ho Kin, creation mountains, head cliffs, mat and flower houses, and war imagery. Along the way she describes examples from Uxmal (primarily the Nunnery), Kabah (primarily the Codz Poop), Sayil, and Labná. Schele and co-author Peter Mathews develop these themes in the Nunnery in much more detail in their chapter "Uxmal: The Nunnery Quadrangle of Chan-Chak-K'ak'nal-Ahaw" in their book *The Code of Kings*, which is separately listed and annotated in this web bibliography.

Schele, Linda
"Linda Schele Drawing Collection".
On web site of the Foundation for the Advancement of Mesoamerican Studies, Inc. (FAMSI) at:
http://www.famsi.org/research/schele/index.html
(accessed 2006 Nov. 25)

The FAMSI web site contains 962 outline drawings by Linda Schele, including 20 of Uxmal, none of Kabah, Sayil, Labná. Two represent capstone paintings, 1 is a drawing after a Charnay photograph and 1 a phallus stone. The others are details of the architectural sculpture. All but one of these has been published in *The Code of Kings* (by Schele and Matthews, 1998), but there they are so reduced in size that the clarity of detail is largely obscured. On the FAMSI web site, the images can be opened at large size (most at about 2000 pixels on the long side, 72 pixels per inch resolution) making it possible be see the detailed information recorded in the drawings. Schele's drawing purposely separate the masks, figures, etc. she is drawing from their backgrounds and surroundings, provided an instructive example of what is best recorded and what not using such a procedure.

Schele, Linda
"Linda Schele Photograph Collection".
On web site of the Foundation for the Advancement of Mesoamerican Studies, Inc. (FAMSI) at:
http://research.famsi.org/schele_photos.html
(accessed 2006 Nov. 25)

The FAMSI web site contains 11,642 Maya photographs by Linda Schele, including 488 of Uxmal, 155 of Kabah, 56 of Sayil, and 17 of Labná. The images can be opened at large size (most at about 3000 pixels on the long side, 72 pixels per inch resolution). There are important views taken before recent restoration and there a few photographs of small sculptures and stelae not reproduced elsewhere (Uxmal, nos. 116066-116095).

Unfortunately, in contrast to the expertly drawn and reproduced images in the Linda Schele Drawing Collection, many of the photographs of these four sites seem to have been rather casually taken and indiscriminately posted on the web. Many of the images, as posted, are not very sharp, some are too dark and contrasty, others presumably made from faded 35mm slides. The accompanying metadata provides only basic identification. None are dated.

Schele, Linda, and Peter Mathews.
The Code of Kings: The Language of Seven Sacred Maya Temples and Tombs.
Photographs by MacDuff Everton and Justin Kerr. New York: Scribner, 1998.

If I could recommend only one book on Maya architecture to a bright, beginning student, this would probably be it. Chapter 1 provides a 40 page introduction to all aspects of Maya architecture, comprehensive and impressively clear. There follow 7 chapters, each an in-depth exploration of a major structure or plaza at 7 different Maya sites. No other text I have read brings Maya buildings to life as richly as this.

The extraordinary chapter, "Uxmal: The Nunnery Quadrangle of Chan-Chak-K'ak'nal-Ahaw", is separately listed and annotated in this web bibliography.

Smith, A. Ledyard
"The Corbelled Arch in the New World". *The Maya and Their Neighbors,* ed. Clarence L. Hay, et al: Chapter XIII, 202-221. New York: D. Appleton-Century Co, Inc, 1940 (reprinted Dover Publishing, New York, 1977).

Smith traces the chronological development of the corbelled arch, primarily in Maya areas, from its crude beginnings to its most sophisticated form. He writes that:

"in its later development in Yucatan this principle [cantilevering the stones] was in part lost by the introduction of the boot-shaped vault stone (Fig. 12, *c*). These highly specialized vault stones do not tenon back into the hearting to any such degree as did the earlier types, and the bearing surface of one stone upon the other is minimized. The result is that the function of these stones as a support is to a great extent lost and they become a veneer for the cement hearting which holds them in place and carries the main strain. The boot-shaped vault stones are the best cut and dressed stones used in corbeled vaulting in the New World and even without a plaster finish offer a beautiful surface"(p. 206).

Smith diagrams 15 different "examples of Maya arches" including 2 forms from Uxmal and 1 from Labná (fig. 12). He writes that "A characteristics of the vaults in the Puuc sites is the overhanging step formed by the course of stones upon which the capstone rest" (pp. 208, 210).

"The principal use of the corbeled arch in Middle America was in roofing the rooms of ceremonial buildings. It was also used, but not so commonly, in portal arches at Labna, Uxmal (Fig. 1, *m* and *n*) and Kabah" (p. 210).

Smith nowhere mentions the Puuc innovation of higher quality concrete, which made possible the abandonment of true, cantilevered, corbelled arches and the spanning of wider interior spaces. Also, there is no description of the still problematic method of constructing these Puuc region vaults.

Smith, Monica L., ed.
The Social Construction of Maya Cities. Washington, D.C.: Smithsonian Institution Press, 2003.

Solomon, Char
Tatiana Proskouriakoff: Interpreting the Ancient Maya. Norman and London: University of Oklahoma Press, 2002.

A straightforward biography, based partly on interviews with Proskouriakoff's family, friends, and associates, and on her unpublished diaries and correspondence. Her visits to Uxmal in 1937 and 1947 are mentioned, in addition to her important visits to Uxmal, Kabah, Sayil, and Labná in 1940, the basis for her famous reconstruction drawings of these four sites. There is a valuable list of over 50 of Proskouriakoff's publications (pp.197-200).

Spinden, Herbert Joseph
"Reconstructing a City of Ancient America". *Discovery* (London), Vol. 12 (May 1931): 149-151.

Staneko, Justine Cecilia
Peeking at the Puuc: New Views on the Design, Engineering, and Construction of Ancient Maya Architecture from Yucatan and Northern Campeche, Mexico. Ph.D. dissertation, 1996. Department of Architecture, University of California, Berkeley. Ann Arbor, Michigan: University Microfilms, 2000.

This is the most detailed engineering study of Puuc construction, based partly on the author's "two-week long trips" to the Puuc area "in 1986, 1989 and 1994" and "one nine week season in 1990, where most of the time was spent at the site of Sayil" (p. 8). The study is rigorous in its approach and has much to offer, but it is unfortunate to find the author exaggerating the originality of its contribution and misrepresenting previous scholarly opinion on the central concept of his thesis.

The volume is divided into 2 sections: 119 pages on "The Architecture" and 45 pages on "Construction". There is a 7 page bibliography followed by 134 pages of important appendices. The author notes that his study dose not concern itself with architectural style, utilitarian functions, chronological sequence, or what the architecture suggests of social organization. Part 1 is a systematic account of Puuc building plans, materials, components, and stability and structural design. In this section the author provides a rigorous classification of these aspects of Puuc architecture, with descriptions and comments. Part 2 describes the "Order and Sequences of Construction Tasks and Puuc Approaches to Construction" and "Methods and Techniques of Puuc Vaulting and Erection Procedures". Although this is the shorter section, it is the focus of his study. The central claim of originality for the thesis is that Puuc architecture was not based on corbelled structure. It is astonishing to read on page 1 of a 1996 doctoral dissertation:

"It is not only a popular notion . . . but a longstanding practice among Mesoamerican scholars themselves to see the monumental, arcuated forms of the ancient Maya as 'corbel structures'". "What is more, this way of seeing stands until this time as our only way of seeing ancient Maya architecture. For nearly a century, the 'corbel view' alone has served as the conceptual foundation from which all of our understanding, interpretations and explanations of ancient Maya architecture spring. . . . this view of Maya architecture has never been empirically challenged" (p. 1). Wow! It is true that many Maya specialist have published unfortunate generalizations about the structure of Maya architecture, not recognizing the diversity of construction technologies. However, for decades Maya scholars have described Puuc architecture and vaults as concrete-rubble core with so-called "veneer" surface stones, not corbelled structures. As George Andrews has pointed out, this is itself an oversimplification, since the transition to so-called "veneer" facing stones occurred gradually during the development of Puuc architecture. Possibly because it was published the year before his dissertation was accepted, Staneko does not mention the most important, closely-related preceding scholarly study of Puuc construction technology, in which George

Andrews distinguishes 4 phases of Puuc vault construction ("Puuc Construction Technology—Early to Late": 113-126; Appendix 1 of "The Puuc Regions and Architectural Styles: A Reassessment", *Architecture of the Puuc Region and the Northern Plains Areas*, 1995: 2-131; based on a 1982 symposium paper).

Nevertheless, there are important observations along the way. Staneko's discussion of the likelihood of wooden framework for the construction of vaults and his recommendation for a reconstructable, systematic, step-by-step dismantling of a Puuc building to document its construction are especially valuable. The 35 page appendix of "Architectural and Construction Notes on Some Ruins of Sayil, Yucatan. Mexico" and 42 page "Glossary of Architectural, Construction, and Engineering Terms" and diagrams of vault and other construction types are highly valuable.

Stierlin, Henri; photographs by Anne and Henri Stierlin.
The Maya: Palaces and Pyramids of the Rainforest. Köln, etc.: Taschen, 2001.

Before turning to the Puuc region text, it should be noted that this book provides outstanding, large color photographs of Uxmal, Kabah, Sayil and Labná, nearly all taken by the author and his wife, Anne Stierlin. For these four Puuc sites, there are fifty-one high quality color photographs, seven of which are full or double page reproductions, including multiple views of major buildings and valuable details, including an all-but-unique color photograph of the interior of the great central-front room of the Governors Palace, Uxmal. All of these photographs are expertly taken with the sunlight revealing the form of each sculpted facade. The seven color diagrams of building elevations and plans are exceptionally clear. Only the book *El Puuc: una tradición cultural maya*, by Román Piña Chán, contains more color photographs of these sites. The most, though gray-scale photographs, are of course in *The Puuc: An Architectural Survey of the Hill Country of Yucatan and Northern Campeche,* by H. E. D. Pollock.

The text includes an excellent, brief introduction to the characteristics of Maya architecture. In this introduction, the author notes ". . . the "Puuc" style which, in formal and decorative terms, represents the peak of Mayan architecture. Both for purity of layout and technological rigor, Yucatán contains veritable masterpieces: the sites of Uxmal, Kabah, Sayil and Labná feature buildings whose dazzling facades date from the later Classic period (A.D. 800-900)" (p.13).

There are about four pages of text on Uxmal and one each on Kabah, Sayil and Labná. In these, the author integrates aesthetic observations with other types of information. Stierlin writes: "The four palaces [of the Nunnery at Uxmal] . . . do not meet in the corners, so the quadrangle is open. Visually, this lightens the whole composition and demonstrates a remarkable mastery of the handling of volume and mass" (p. 132). There is a revealing formal analysis of the repetitive masks on the frieze of the Governor's Palace (pp. 146-147). Like Proskouriakoff (but from a contrasting position) Stierlin does not hesitate to offer an aesthetic judgment on the unique façade of the Codz Poop at Kabah: "This accumulation reflects an obsessive litany based on unchanging repetition, from which it draws its spell-binding appeal.

The repetition of the schematic Chac mask becomes almost hypnotic in its effect. . . " (p.155).

T

Taladoire, Eric
"Los juegos de pelota del norte de Yucatán: una revisíon de los datos". *Perspectivas antropológicas en el mundo maya*. Sociedad Espanola de Estudios Mayas, Pub. 2. Ed. Josefa Iglesias Ponce de León, and Francesc Ligorred Perramon. Madrid: Departamento de Historia de América II, Facultad de Geografía e Historia, Universidad Complutense; Instituto de Cooperación
Iberoamericana. 1993: 163-179.

Making use of recent studies, including the continuing discovery of new ball courts, the author presents a survey of previous ideas concerning the ball game and present revised information and ideas. In contrast to previous publications, he argues that the number of ball courts in the Northern Yucatan does not indicate a reduced number in comparison to the number at other Maya sites. He also presents the fascinating hypothesis that there is (in translation) "an inverse relationship between the iconographic richness of the game and the abundance of the courts" at Maya sites, and that this might be more pronounced in periphery zones such as the Puuc.

Totten, George Oakley
Maya Architecture. Washington, D.C.: Maya Press, 1926 (reprinted by Burt Franklin, New York, 1973).

A large format book with 25 pages of standard text and 104 plates of illustrations, a few full page. These include 23 photographs of Uxmal, 2 of Kabah, 2 of Sayil, and 3 of Labná. 21 of these photographs were taken by Totten, who also contributed 2 drawings and 2 watercolor reconstructions. 7 of these photographs were taken by Maler and 2 by Ernest L. Crangall. Presumably because the text is somewhat amateurish, this book is almost never mentioned in publications on Maya architecture, but many of the photographs are high quality and record information not available elsewhere.

Moreover, there are occasional observations worth noting. Regarding the physical condition of the buildings, Totten states that "the greatest enemy of stone masonry is frost. Fortunately this is not present, so that many of the stones are as fresh and sharp as though carved yesterday". He writes that the buildings have been damaged by the deterioration of wooden lintels and roots forcing stones apart. However, he claims that the foremost cause of destruction was man: "these buildings . . . offered tempting quarries for succeeding generations. Thus we see what were once beautifully carved doorways and splendid ashlar facades robbed not only of their adornments but of the actual plain cut stone work as well. Many of the haciendas of recent date are largely built of the old buildings" (p. 37).

V

Valdés, Juan Antonio, ed.
Criterios de intervención arqueológica en ciudades Mayas. Instituto de Antropología e Historia de Guatemala, Ministerio de Cultura y Deportes, 1997.

A compilation of 14 papers, with 46 color photographs and about 40 diagrams and maps, resulting from a conference held at Tikal in 1996, with participants from Guatemala, México, United States, Honduras, and Spain. In his introduction, the editor, Director General del Patrimonio Cultural y Natural, Guatemala, writes that while there have been many publications on the methologies of investigation and excavation of (in translation) "almost no literature exists specific to the processes, methologies, and materials that should be used in the works of consolidation and restoration of monuments" (p.1). As a results, he writes, individual criteria are often used. Instead, Valdés writes (in translation) "today the sites should no longer be seen as isolated pieces of a riddle, but rather as an integral part of a totality representative of diverse cultural and ethnic groups, at every moment forming an integral part of the cultural patrimony of a people, a culture, a nation" (p.1). He notes the controversy surrounding some of the early 20th century alterations in México, Guatemala, Honduras, and El Salvador, and writes that large advances have since been made. Valdés describes this conference and publication not as attempting to establish fixed normatives, but rather as at the beginning of a dialogue.

In his introduction, "Antropología y criterios de intervención arqueológica", Félix Jiménez Villalba, Museo de América, Madrid, provides several informative historical accounts. First, he presents a chronology of early descriptions of Maya sites. He then notes the first excavations, in Peru and Mexico, sent by the Spanish crown in the 2nd half of the 18th century, and the influence of the 1787 excavation in Palenque. He then turns to the history of anthropological and archaeological interventions in the Maya area, ending with a rather grim description of the present condition, in which the vary interests of archaeologists, architects, anthropologists, ethno-historians, and biologists converge, joined with the economic and political interests that come into play. There is (in translation) "no search for equilibrium, a joint vision that would permit us to recover the reality of that which was" (p.13). Only one of the papers deals with a Mexican site, a paper on Isla Cituk, southeast of the town of Campeche, by Elena Canché Manzanero, Instituto Nacional de Antropología e Historia, Campeche.

W

Wauchope, Robert
"Domestic Architecture of the Maya". *The Maya and their Neighbors,* ed. Clarnece L. Hay and others: Chapter XV, 232-241. New York: Appleton-Century, 1940.

A survey of house types among the Maya, stressing the scarcity of reliable studies. Wauchope calls attention to the variety of house forms and construction among the Maya and within the Yucatan. He warns that "The modern Yucatecan platforms can scarcely be interpreted as mere survivals of an ancient custom, to which, as to many other customs, the Indian has clung" (p. 233). He adds that "thirteen undated, prehistoric houses at Chichen Itzá and other small habitations at Kabah and Sayil were probably rectangular, yet Yucatecan dwellings have been primarily apsidal since at least 1843 and probably earlier" (p. 234).

Wauchope, Robert

Modern Maya Houses: A Study of Their Archaeological Significance. Carnegie Institution of Washington Publication No. 502. Washington, D.C.: Carnegie Institution of Washington, 1938.

This is an extraordinarily comprehensive and detailed study: 181 pages of text; about 50 clear diagrams, many including on a single page comparisons of the ground plan, elevation, structural details, and pictorial drawing of a single house; and about 150 small, grey scale photographs, of high quality. Apart from the rewards for anyone interested in the range of structural types and use of materials of indigenous peoples worldwide, this study provides the most detailed information available for understand the nature of ancient Maya houses. Because ancient Maya representations of houses, in paintings and relief carvings, appear so similar to contemporary Maya houses, the author initiated his study with the belief that "the best approach to an improved interpretation of ancient domiciliary remains could be made by a study of present-day dwellings" (p.1). He notes also that since "materials used in house construction in many cases have not changed since the sixteenth century; there is no cause for belief that they were not used by the ancient Maya also" (p.161). Although his study is primarily descriptive, Wauchope argues that only by understanding the structure, materials, and many other details regarding contemporary Maya houses can we hope to recognize the very slight remains of ancient Maya houses when conducting surface exploration or excavation. Although his study is directed largely to archeological description, the author offers suggestion, along the way, for possible interpretations. For example, he suggests that "someday we shall find a significant correlation between the [geographical] distribution of ground plans [types] and events in Maya history and prehistory" (p.147).

There are chapters on Foundation features, House framing, Walls, Extraneous features, Thatch, Interiors, Miscellaneous property, and Non-material aspects. Moreover, each chapter is presented in a series of subtopics: for example, walls are described in subsections for Types, Identification of wall construction in ruins, Position of walls, and Finish. Within each of these there is a further division: for example Wall Types are divided into Vertical Poles, Horizontal wattle, Vertical wattle, Dry rubble masonry, Rubble masonry, Cane or wooden framing and mass adobe, Adobe brick, and Combinations of above types. Finally, each of these wall types is described under subdivisions: for example, Horizontal Wattle is described under Construction, Geographical Distribution, Antiquity, and Linguistics. The result is a mass of detailed information easily accessed and interrelated.

Although including examples from other districts, the study primarily contrasts house types in Guatemala with those in the Yucatan. Wauchope notes that "almost every family in [Yucatan and Campeche] has, in addition to its dwelling, other property which lies usually back of the main house or to one side of it"(p.128). There are occasional references to Uxmal, Kabah, Sayil and Labná. For example, the author notes that at Sayil "house sites were associated for the most part in group units surrounding the chultunes or underground reservoirs (p.4).

Wauchope concludes with a prophetic and stirring call for "a complete excavation of the domestic architecture of some small Maya village" (p.153). "We need an excavation that will tell us how the great mass of the people lived . . . many things with social and religious implications could be found in a carefully excavated small village site" (p.153).

Witschey, Walter R. T. and Clifford T. Brown

"The Electronic Atlas of Ancient Maya Sites". Presented at the symposium on Current Applications of Remote Sensing and GIS in North America and Mesoamerican Archaeology, 67th annual meeting of the Society for American Archaeology. Denver, March 22, 2002.
On the web at:
http://mayagis.smv.org/papers.htm
(accessed 2008 March 13)

The authors describe their development of "a regional GIS for the Maya culture area of southern Mexico and northern Central America." They describe their approach and problems involved. Although not discussed in their paper as it appears on the web, their PowerPoint slides include 5 maps of the Northern Yucatan area studied, which includes the Puuc Region.

Wurster, Wolfgang W.

"Die Architektur der Maya". *Die Welt der Maya: Archäologische Schätze aus drei Jahrtausenden* , ed. Nikolai Grube and Eva and Arne Eggebrecht: 107-138, 287. Mainz am Rhein: Verlag Philipp von Zabern, 1992 by Wolfgang W. Wurster.

In his essay, Wurster reviews the history of public reception and scholarship of Maya architecture and a wide variety of characteristics of Maya architecture. These include sections such as the general rule of layering in monumental architecture, construction principles of a pyramid, decorative elements of step pyramids, the Maya vault, basic principles of city construction, and the effect of space. Although he does not discuss the Puuc in his text, there are four photograph of Labná and one each of Kabah and Uxmal.