

DECODING ASTRONOMY IN MAYA ART AND ARCHITECTURE

Marion Dolan

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Preface

Our understanding of the enormous accomplishments of the ancient Maya Civilization continually expands as archaeologists, anthropologists, and astronomers analyze the vast quantity and quality of their architectural, artistic and literary remains. The complex, brilliant cultures of Mesoamerica excelled in architecture, artworks, astronomy, mathematics, calendrics and literature. The Maya created the most sophisticated and highly developed writing system, which set them above all other cultures in Pre-Columbian America.

When writing an earlier book, *Decoding Astronomy in Art and Architecture*, the main focus was aimed at the astronomy of a variety of advanced cultures around the world. At that time I hoped to include a chapter discussing the astronomical knowledge that the ancient Maya encoded into their art and architecture. Upon reviewing my notes, books, and many scholarly journal articles on the ancient Maya, I realized that it was impossible to encapsulate the enormous accomplishments in astronomy achieved by the Maya to merely a single chapter. Their knowledge of astronomy was encoded not only into their art and architecture but also into every part of their daily life. Astronomy filled their mythology, their religion, their rituals, their kingship traditions and their cosmology.

This book presents an overview of established data as well as exciting new findings in Maya studies that reach across their wide geographic area of habitation and throughout their long historical period of urban development. This publication can only investigate a small sampling of the most famous and most visited Mesoamerican sites that have been carefully excavated by archaeologists and thoroughly studied by astronomers. These well-researched Maya cities and established beliefs discussed here cannot be dismissed as speculative for textual inscriptions verify the Maya's intentions. This work will examine the various ways that the Maya protected their vital astronomical knowledge by encoding it into their architecture, myths, rituals, histories and artworks. These different means of retention enabled their understanding of heavenly phenomena to be passed down to assist later generations. This survey is not intended for experts in these fields but instead for those readers interested in the history of astronomy and the history of art and architecture, for those who want to know how they are interrelated.

Observations of the night sky were enormously important to Maya societies. Their awareness of the apparent motions of the Sun, Moon, planets and stars is demonstrated in the abundant astronomical data found written in their codices, inscribed on their monuments and attested in their advanced calendric system. Their public and ceremonial buildings were usually oriented astronomically which helped to celebrate their ritual observances at appropriate times in the celestial cycles. The study of astronomical knowledge that was integrated into a society's buildings, temples, tombs and even whole city designs is called archaeoastronomy.

The science of archaeoastronomy is a relatively new science that was gradually accepted by a very dubious academic community. When studies of archaeoastronomical orientations in early, less developed societies were first published, the academic community was skeptical and slow in accepting that these more primitive cultures, even back to prehistoric eras, had the ability to understand the motions of the heavens. Originally the few archaeoastronomers studying this field focused mainly on megalithic structures and ancient architecture, such as Stonehenge, Avebury and Newgrange. Now this study of encoded astronomy has expanded widely, finding astronomy in ceramics, paintings, poetry, weaving, legends and myths.

Currently the field of archaeoastronomy has advanced across the divides of the past and has become an interdisciplinary field including contributions from a wide range of academic areas.

The overwhelming amount of scholarly literature focused on the Maya is now generated not only by archaeologists but also by astronomers, anthropologists, epigraphers, linguists and art historians. Maya researchers delve into more than the general history of the Maya; they have studied and written on their philosophy, mythology, cosmology, religion, mathematics and science. Experts in different fields now confer and work together in holistic ways to improve and combine their research for clearer insights into the ancient cultures. Scholars have rediscovered the crucial role astronomy played in the daily lives of the Maya. Anthropologists and ethnologists work with contemporary Maya people to gain understanding into their long-held traditions revealing a clearer idea of their values, traditions and belief systems. Some scholars believe that the contemporary Maya people hold the keys to a truer interpretation of the ancient Maya cosmology.

Because archaeoastronomy today delves into so many areas beyond their architectural ruins, most scholars refer to the study as cultural astronomy and sometimes ethno-astronomy, more comprehensive titles. These shared studies in cultural astronomy have contributed valuable data to each related area. A result of these interconnected studies has enabled scientific studies to accumulate slowly but accurately to enrich their common goal of providing a better understanding of human history through time.

Recent translations of Mayan glyphic texts offer a more precise understanding and provide extensive examples of their use of astronomical symbolism. The long, tedious efforts to decode the Maya hieroglyphs proved to be the prime factor that encouraged acceptance for the new field of archaeoastronomy. Once astronomers and epigraphers could accurately read the dates, the names and the historic events

recorded on pyramids, tombs, temple walls and monolithic, no one could deny that the Maya had an accurate understanding of the movements of the heavens. The few Mayan books that survive are filled with observed data and astronomical charts. The ancient sky-watchers not only followed the nightly progression of the heavenly bodies, they included that celestial information into almost every aspect of their society. These ancient records together with archaeological evidence help explain the relationship between functional and symbolic astronomical knowledge.

This book is not meant to teach the technical aspects of archaeoastronomy, nor is it a manual for undertaking serious field studies. This text will discuss the fundamental information needed to grasp the abilities and celestial alignments of the Maya skywatchers. It will help readers understand the purpose of the monumental architecture created by the architects and artisans and explain the astronomical data that they incorporated into their designs. As a university professor teaching introduction to world art history, I would ask my students what they had learned about the Maya civilization in high school. Their answers varied from nothing, to almost nothing, to one paragraph. Students should be introduced to the ancient Maya's history, which is as essential as Greek and Roman history. The Maya should be admired and acknowledged for their 2000 years of outstanding achievements. This study's central concern is directed to the history and function of the astronomical content that has been found encoded into temples, tombs, paintings, engraved stelae and ceramics.

The second chapter of this monograph describes the grueling adventures and amazing discoveries of two very early visitors to the Maya ruins, John Lloyd Stephens (American) and Frederick Catherwood (British). They were the first English speakers to explore the lands of the ancient Maya and to discover many of their architectural ruins. The writings and illustrations of their incredible findings introduced the ancient Maya and also the contemporary Maya people to the rest of the world. Their two exploratory journeys in 1839 and again in 1841 were spent struggling through hundreds of miles of dense jungle overgrowth and fighting diseases, insects and nature, but they managed to locate and document more than 40 unknown Maya cities. Most settlements they uncovered were from the Classic Period, cities that thrived in the third to the tenth centuries. The explorers recorded and illustrated many inscribed monuments but these puzzling texts could not tell their ancient stories until the mysterious hieroglyphic inscriptions were at last deciphered, a long and tedious process. Their discoveries inspired many future expeditions into the tropical jungles which archaeologists still struggle with today. In spite of more than 100 years of investigation into the vast Maya lands, many unknown cities, pyramids and monumental sculptures still lie buried, swallowed whole by the impenetrable forest canopy.

The second chapter introduces the basic information necessary to gain a fundamental understanding of the ancient Maya Civilization, such as the relevant geographical areas within which they settled and a chronology of the culture's development and change through time. Their calendar, religious traditions, scientific knowledge and trade networks were not completely new undertakings since much had been inherited from centuries of contact with other Mesoamerican

cultures, especially the Zapotecs of Monte Alban and the Olmecs who settled the Gulf Coast lowlands. Important influences from earlier societies will be discussed. The Maya were not the first society in Mesoamerica to create lofty pyramids and decorated temples, but their pyramids rival those of ancient Egypt in size, workmanship and in their accurate astronomical orientations. When first investigated, the architecture of the ancient Maya impressed archaeologists with their towering height, astonishing beauty and enormous size. Their buildings were all colorfully painted and decorated both inside and outside with symbolic images, meaningful numbers, historic dates and honored gods.

The third chapter explains the fundamentals of archaeoastronomy and cultural astronomy, introducing the reader to the type of information that has been gathered by archaeologists and archaeoastronomers and why it is important. The Sun's rising and setting positions on the horizon were an important factor in determining the desired alignment of Maya architecture. The key astronomical events to which buildings were oriented were the equinoxes, the solstices and the zenith passages, especially the Sun, Moon and Venus. The Maya realized that the five planets were distinct from the fixed stars and moved in different recurring cycles, which they carefully tracked. By far the most important planet for Maya astronomers was certainly Venus; they applied numerous names to the brightest planet according to its position as the Morning or Evening Star and its location in its 584-day cycle. The other planets were of lesser concern and are not mentioned nearly as often as Venus. Jupiter was more involved in Maya myths than the other three planets. Certain star patterns, such as the Big Dipper, Pleiades, Gemini, Orion, were recognized and watched as well, but they had their own names and numbers which they associated with these asterisms. The research of archaeoastronomers today is greatly assisted by the ability to accurately reproduce the night sky for any date in history; this can be determined with little effort. Computer programs now calculate any stellar or solar position on any past date and at any geographical location in an instant.

Chapter 4 focuses on the types of architecture that the Maya included in their cities along with the city's basic design. The meaning behind the structural form tells much about the Maya interests and values. Experts have determined that the Maya architectural and urban planning complied to a complex set of rules that incorporated astronomical factors. The functions of their architectural concepts were embedded in their cosmological understanding. Orientation to the Sun's position on the horizon was common and was intended to indicate scheduling of events and agricultural activities. Many Maya buildings were specifically aligned to record Venus' extreme positions in its celestial cycle. Some important buildings were oriented to particular features of the natural landscape, such as mountains, hills, cenotes and standing monuments. Architectural alignments corresponding to the major and minor extremes of the Moon (also called standstill positions) have been discovered in some cities. Structures along the northeast coast of the Yucatan peninsula, where a lunar cult was active, have shown significant lunar orientations, especially full Moon extremes.

Chapter 5 demonstrates that the mythology and cosmology of the Maya are rich in the personification of the forces of nature, the Sun, Moon, stars and planets,

minor deities and heroes. These forces play the chief roles in their creation stories. The key figures of their mythological tales have been reconstructed chiefly by studying their artworks, personifications and texts. The myths define the ritual relationship between humans and the environment, both natural and supernatural. Their myths provide explanations for the origin of the heavenly bodies as well as human and animal life. Important spiritual forces in their myths are the sacred mountain, clouds, rain, thunder and lightning. Also important is their creation myth that is acted out in the Popol Vuh in a sequence of four efforts at creation. First were animals, next wet clay, wood and then last, the creation of the first ancestors from maize dough. These hero myths were performed and also colorfully painted on their various ceramic vessels.

The Maya created their own variations of the pantheon of gods and goddesses; the deities and heroes had many different names and various appearances. Their stories were repeated with changing names, shifting shapes and diverse depictions. Scenes in nature along with human and animal figures changed with confusing speed. But beneath this seeming confusion, a sense of an orderly, structured world and proper behavior toward the gods played an essential role in maintaining harmony and balance within the living community.

The more precise translations of Maya script on monuments and in the few books that survive provides evidence of their consistent use of astronomical symbolism, especially in their myths and religious beliefs. These ancient records together with archaeological evidence help clarify the relationship between functional and symbolic astronomical knowledge. Both are encoded within their cosmological understanding. The glyphic texts offer graphic evidence that structures served as calendric markers and as sacred stages for seasonally timed rituals established through their reliance on cosmic connections.

The cyclical movements of Venus were thoroughly tracked and played a role in their myths. The symbolic relationship of Venus with rain and maize is manifested in many areas of Mesoamerica and in different time periods. The Venus-rain-maize connection was thought crucial to their agricultural life. This connection was associated mainly with the evening appearances of the bright planet. Honoring the god/planet with the proper ritual observances, performed by the king was vital to the production of abundant maize, necessary for survival of the Maya people. The mythical association of Venus-rain-maize was often pictured in iconographic sculptures applied to sacred temples and public monuments.

Chapter 6 discusses Maya literature especially in reference to astronomical almanacs and star charts. The Maya civilization was the only Mesoamerican culture that created a fully developed written language; it was produced in total isolation from Europe and from the rest of the world. Maya literature was not produced in a single language since 27 different languages were spoken within the wide-spread Maya territories. Many separate Mayan language variations are still spoken today but they are not connected with the Classic Mayan language which was a literary language used only by the elite, just as Latin was used by scholars and the Church for many centuries.

The Maya produced innumerable screen-fold books written and illustrated on bark paper. Unfortunately for historians, only four Maya codices have survived the passage of time, nor the humid, soggy climate of the tropics, nor the fervor of the Spanish clergy. None of these surviving books were written during the Classic period, the pinnacle of Maya culture. Scholars realize that ancient Maya books covered many more subjects than are represented in the four examples that survive. Not only are the survivors few in number, they all have numerous missing pages.

When considering the Classic period, the best-preserved samples of Maya writing are not found in books but were carved on their megalithic monuments, in particular around doorways and on their great rising stairways. Regrettably, the inscriptions on monuments were almost eliminated in the Classic cities during the ninth century. The textual inscriptions that more readily survive were those painted or carved on durable surfaces, mainly stone. Ceramic vessels also provide an important source of text since they often include images that help to explain what was written. Maya script has also been found on jade, shells, wood and bones.

The few Mayan books that survive often include important astronomical information. The Dresden Codex contains almanacs that track the sidereal motions of the Moon and the celestial patterns of Venus, the Great Star called Chak Ek'. This codex also includes eight pages listing the solar and lunar eclipses which were dreaded events, bad luck days. Astronomical data was also inscribed on monuments; for example, the inscriptions embedded on the tablets commissioned by Sun-Eyed Snake Jaguar at Palenque contain precise information about the periodicity of Jupiter, signifying that Jupiter was among the planets tracked in their almanacs.

In Chap. 7 the Preclassic period is described as well as the astronomical knowledge held by several Preclassic cities of the Maya. The dates of the original Maya occupations in Mesoamerica continue to be pushed back to earlier and earlier eras. The first known settlements now date to about 2600 BCE in Belize at which time they were already planting crops. By 1800 BCE settlers in Maya areas were producing pottery and fired clay figurines. By 750 BCE evidence of cities has been found, and by 400 BCE a developed hieroglyphic script was being inscribed on monuments and ceramics. Soon after that early date large standing stelae were being carved and raised. The earliest well known lowland city was Nakbe in the Peten, Guatemala. At the same time larger, more advanced cities were developing in the highlands as well.

El Mirador in Guatemala, north of Tikal, grew to be the largest Preclassic Maya site; the city flourished for over 500 years, from 300 BCE to CE 250. The complex city of El Mirador was founded in the center of a series of radiating causeways, reaching more than a mile from east to west, even larger than Tikal in size. The significant building complexes, pyramidal temples and individual structures of El Mirador were even greater than cities built in later periods of Maya history. The level of societal and political complexity of El Mirador was as great as cities such as the central Mexican city of Teotihuacan. Archaeoastronomical studies have indicated that many key structures of the Preclassic period were already oriented in specific relationships to the heavens, mainly to sunrises and sunsets on significant dates. The solar alignments of El Mirador represent the earliest of these

observational alignments in the Maya area to date. These building orientations signify the importance of astronomical and calendrical factors in architectural design and even in city planning. Archeologists still hotly debate the different factors that caused the decline and abandonment of the Preclassic cities; they suggest it was connected to the rise of greater emerging powers, in particular the colossal city of Teotihuacan.

Chapter 8 examines the key cities of the Classic Period and surveys the astronomical information encoded into their artworks and architecture. During the Classic period (CE 250–900) the Maya civilization reached its peak, producing large-scale buildings and pyramids rising to the skies, inscribing enormous monuments and decorating their architecture with complicated iconographic artworks. The three major population centers of the Maya world during the Classic Period were Tikal in Guatemala, Copan in Honduras and Palenque in southern Mexico. These cities of the Classic Period grew dramatically in population density, reaching a remarkable size with 50,000 to 120,000 inhabitants. The important Classic cities formed communal networks of alliances for power, trade, expansion and warfare.

Tikal with its uniquely styled pyramids reigns as the largest and most extensively explored archaeological site in Guatemala. It has been recently shown that the ancient city was at least four times bigger than previously thought. As with most cities of the Maya, only a small portion of the ancient site has been uncovered. The city of Tikal was initially associated with the powerful city of Teotihuacan which held enormous influence over the Early Classic cities of the Maya. In CE 378 the ruler of Teotihuacan deposed the ruler of Tikal and other nearby cities and instead placed a new king on the throne, establishing a new dynasty. The leader of the takeover was Sivai K'ak' (Born of Fire); the political takeover is thought to have been a violent coup since the former king of Tikal died on that same day. A year later another new king was installed by Sivai K'ak'; this new king created an era of political dominance and a very successful reign. Tikal's leaders constructed a monumental city with numerous astronomically aligned buildings.

Copan too was an extremely important Classic city and was associated with Tikal in various ways. Copan grew in importance because of its trading network; many of its architectural structures are astronomically oriented and adorned with celestial symbolism. Admired for its abundance of ornate artworks, Copan structures portray the important myths of the ancestors and the cosmological beliefs of the Maya. Like many important Classic cities its decline began in the ninth century. After thriving for over 400 years, Copan began to lose its powerful position in the Maya economic world. One by one the long standing royal dynasties that had reigned in the larger Classic cities began to weaken and experience losses in their wealth and political status.

The great Maya city of Palenque was ruled by mighty kings; the most famous were Lord Pakal and his son, Chan Balum. They created the most impressive, astronomically aligned architecture, the Temple of Inscriptions, the Temple of the Sun, the Temple of the Cross and the Temple of the Foliated Cross. King Pakal's tomb revealed great riches and his symbolic tomb sculpture is considered one of the most impressive and important artworks.

During the failing Terminal Classic period, no new structures were undertaken and the great cities were gradually being abandoned. Subsequently, the cities no longer inscribed dates on monuments; the last known inscribed date is in 909. There is still no totally accepted explanation for the surprising collapse after such lengthy and successful regimes. Scholars lay the blame for the decline on multiple factors including weather shifts, drought, internecine warfare, overpopulation and the traditional system of rulership.

Chapter 9 considers the subsequent rise of the northern lowland cities in the Yucatan Peninsula, especially Chichen Itza which reigned supreme during the Terminal Classic period. The Postclassic era saw many momentous changes within Maya societies. As the major Classic cities were deserted, the surviving populations moved on to settle around permanent water sources. The Yucatan Peninsula has the largest extent of underground rivers and cenotes in the world, a reliable, plentiful source of water. Even while the older political systems in the southern lowlands were breaking down, the well-watered, major cities in the northern Yucatan Peninsula were still able to thrive. Activities, populations, wealth and trade moved north and settled in the northern lowlands of the Yucatan Peninsula and the Maya highlands.

The Postclassic Maya city of Uxmal stood as an important political and economic center and is most impressive because of its well preserved buildings. Its archaeological site is one of the largest and most visited of the impressive Maya cities. Uxmal reached its peak during the Late and Terminal Classic period. Numerous Uxmal structures are also astronomically oriented. The Governor's Palace is aligned to the extreme horizon positions of the planet Venus. The decorative sculpture on the palace shows a strong iconographic relationship with Venus, linking it with the southernmost rising point when Venus rises as the Morning Star. Additional symbolic features suggest it also refers to the northerly extremes when Venus is the Evening Star. The Governor's Palace holds convincing evidence due to the appearance of numbers and hieroglyphic symbols identical to those found in the Venus table in the Dresden Codex. Additional astronomical data was found recently when scholars deciphered the iconographic program sculpted on the palace; the sculpture they decoded was a zodiacal frieze.

Chichen Itza dominated the northern Yucatan as one of the grandest Maya cities with a vast number of inhabitants. The Terminal Classic period city was settled by a diverse population and therefore developed a variety of remarkable architectural styles. The oddly shaped astronomical observatory, El Caracol, is a round building set upon a huge platform; its significant height allows sky watchers an excellent 360-degree view of the skies high above the tangled jungle of scrub and trees that surround the site. The doors and three surviving windows of the Caracol are oriented to the phases of the Moon and the positions of Venus. Scholars believe that Maya astronomers used the Caracol to gather information concerning the movements of the Sun and other heavenly bodies to predict the seasons, the weather patterns for their agriculture, and for ritual observances.

By the eleventh century the city of Chichen Itza and the Puuc population began to decline in numbers. The elite activities of monumental building and sculpture

ceased but the city probably still had a large number of residents. Unlike the Classic cities, the great buildings and monuments of Chichen Itza were never totally lost or buried in foliage, but large regions of the city have not been investigated or uncovered. The area around Chichen Itza was still settled with a small native population, who were still producing agriculture, when the Spanish arrived.

Chapter 10 considers the future direction of Maya studies and explores the most recent technological advances that have allowed archaeologists to uncover exciting, fresh discoveries including hundreds of unknown sites developed by the ancient Maya. The latest research tends to topple long-accepted theories and revise the “known” facts. The application of the ground-breaking Light Detection and Ranging, called LiDAR, enables scientists to apply laser pulses that are connected to a GPS system, toward new searches in impenetrable areas. These new techniques have the ability to pierce deep into the tropical forests of Mesoamerica with unbelievable results. The laser beams have the capacity to cut through the thick jungle growth that has obstructed investigators on the ground. By flying over and across the miles of forested lands, these scientific surveys created accurate plans of territories formerly occupied by the Maya. Their surprising discoveries produced a three-dimensional map of the 30,000-square-mile area between Vera Cruz and Campeche. Fortress cities have been discovered with huge defensive walls, moats, watchtowers indicating large scale warfare. Long-accepted theories are constantly being revised because of new understandings and from glyphic texts that are being decoded and better understood.

The goal of *Decoding Astronomy in Maya Art and Architecture* is to make some of the huge amount of new evidence more available for interested readers. Many of the important findings of scholars that circulate in scientific journals rarely reach the general public. Scholars write for other scholars and their specialized articles are not easy to follow by average readers. As with explorations of outer space, the amount of data now available relating to cultural astronomy is constantly expanding. This work demonstrates how wide-spread and crucial astronomical knowledge was among early Maya societies. The study examines the numerous ways that vital astronomical knowledge was protected, encoded into myths, rituals, histories and artworks, and then passed on accurately to assist later generations. Research into the long history of the Maya reveals the diversity and richly complex relationship that existed between the terrestrial world of humans and the celestial world of the stars. Hopefully this study will provide a clearer understanding of the importance and depth of astronomical knowledge possessed by the ancient Maya.

References and Further Reading

- Aldana, G. (2016). Discovering discovery: Chich'en Itza, the Dresden Codex Venus Table and 10th century Mayan astronomical innovation. *Journal of Astronomy in Culture*, 1(1), 57–76.
- Aveni, A. F. (1997). *Stairways to the stars: Skywatching in three great ancient cultures*. Wiley.
- Aveni, A. F. (2001). *Skywatchers*. University of Texas.
- Braswell, G. E., & May, N. P. (2014). The shadow of the pyramid. In *The ancient Maya of Mexico: Reinterpreting the past of the Northern Maya lowlands*. Routledge.
- Grofe, M. J. (2014). Astronomy in Mesoamerica. In *Encyclopaedia of the history of science, technology, and medicine in non-western cultures*. Springer Science+Business Media.
- Miller, M. E. (1986). *The art of Mesoamerica from Olmec to Aztec*. Thames & Hudson.
- Miller, M. E., & O'Neil, M. E. (2014). *Maya art and architecture*. Thames & Hudson.
- Sprajc, I. (2020). *Lost Maya cities*. Texas A&M University Press.
- Sprajc, I., & Nava, P. F. S. (2016). Astronomy and architecture in the Maya lowlands. *Journal of Systems Architecture*, 2(2), 189–215.
- Tedlock, D. (2010). *2000 years of Mayan literature*. University of California Press.

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Part I
Introduction to the Maya Civilization

Chapter 1

Uncovering a Lost Civilization



Introduction

The astounding journeys of John Lloyd Stephens and Frederick Catherwood to Central America in 1839 and from 1841 to 1842 introduced the ancient, unrecognized Maya civilization to the rest of the world. Their life-threatening adventures saw them fighting their way through hundreds of miles of thick jungle vegetation, suffering from the sweltering heat, suffocating humidity, and soul-soaking rains. They were obstructed by the civil war of General Santa Anna; overwhelmingly frustrated and ultimately jailed by threatening politicians exercising their illusionary power. Despite their enormous struggles, they managed to locate and explore numerous ruined cities that flourished during the Classic period of Maya history, from the third to the tenth centuries. They were caught in the midst of a violent revolution, troubled with bats, snakes, and biting insects; both men suffered the effects of malaria, flesh-eating parasites, and days without food or water. The adventurers were the first English speakers to visit these areas of Central America and first to record many of the ancient monuments. Along their hazardous journey they met and documented many descendants of the ancient Maya, some who still spoke the same language. Many of the natives they met were anxious to assist the explorers in their explorations.

A detailed description of their treacherous journey, along with their astounding discoveries, appeared in their joint two-volume book, *Incidents of Travel in Central America, Chiapas, and Yucatan*, published in 1843. Their travel book became an instant bestseller with twelve editions printed in only 3 months which was unheard of at that time. Stephen's first-person account and lively text revealed the scope and complexity of the Maya cities. Catherwood's colorful artworks illustrated the variety of buildings, the precise details of their carvings and the intricacy of hieroglyphic writings. These ruins were indeed created by a totally unknown culture that lived in an unknown world. Stephens and Catherwood uncovered not merely new

architectural wonders and buried cities but an entire unknown civilization, buried in the jungles for over 1000 years.

John Lloyd Stephens (1805–1852) was American, living in New York, where he became a lawyer, but much preferred travel and searching for adventure in uncharted territories more than practicing law. In 1834 Stephens set off for a grand tour of the usual European cities but decided to continue even further in order to visit out of the way sites throughout Greece, Turkey, Jordan and Egypt. In Cairo, he disguised himself as a native; looking inconspicuous he was able to travel freely. He hired a *falookha* with a captain and crew to sail the length of the Nile and wandered unquestioned through the ancient Egyptian temples, tombs and into massive pyramids. He managed to gain access into the hidden rose-red city of Petra and walked the Biblical pathways through the Holy City of Jerusalem. So enthralled with his experience of these exotic cities, Stephens wrote his first highly praised travel book describing his far-off ventures, *Incidents of Travel in Egypt, Arabia Petraea and the Holy Land*. The lawyer-turned-adventurer proved to be a skillful writer; reviews of his popular book praised his escapades and asked to hear more of his ventures into little known areas. Profits from his book provided sufficient funds for future expeditions into enticing, unexplored terrain.

Six years older than Stephens, Frederick Catherwood (1799–1854) was born in England and became an accomplished artist, architect, businessman and explorer. Between 1824 and 1832 Catherwood too had made many trips to historic cities around the Mediterranean and had sailed the Nile to explore the ancient temples and beautifully decorated tombs of Egypt. Throughout his travels he used his artistic talent to produce watercolor drawings of the ruined temples, monuments and pharaonic statues with great accuracy, including the Egyptian pyramids, the Dome of the Rock, the Holy City of Jerusalem and numerous ruins in the Middle East. His meticulously detailed drawings of the sites brought these ancient civilizations to life for armchair travelers.

In 1836, Stephens and Catherwood happened to meet in London; they quickly discovered that they enjoyed similar interests and adventurous characteristics. Though quite different in temperament, Stephens was outgoing and enthusiastic; Catherwood was rather introverted and quiet; they soon became close friends. Their visits to intriguing foreign locales inspired them to travel to the lost ruins in Central America, particularly the city of Copan in western Honduras. Copan was one of the few known sites of the ancient Maya but it had seen few visitors. The two men decided they must investigate the area and write a definitive description of those intriguing, lost cities. Their extensive, life-changing journey to explore Maya remains in the New World set off from New York on a ship to Belize. Stephens was single but Catherwood left behind his wife. Stephen's describes their departure in his own words:

On Wednesday, the 3rd of October 1839, we embarked at New York on board the British brig Mary Ann, Hampton, master, for the Bay of Honduras. The brig was lying in the North River, with her anchor apeak and sails loose, and in a few minutes, in company with a large whaling-ship bound for the Pacific, we were underway. It was seven o'clock in the morning:

the streets and wharfs were still, the Battery was desolate, and, at the moment of leaving it on a voyage of uncertain duration, New York seemed more beautiful than I had ever known it before.

The First Expedition to Mesoamerica

They were not the first outsiders to visit and write about the ruins of Central America. Both Stephens and Catherwood had read the story by the renowned anthropologist Alexander von Humboldt who had carried out an expedition to Central America in the early 1800s. Another pioneer Juan Galindo had explored Palenque and Copan 5 years earlier; they had been enticed by these earlier surveys of the two ancient cities. Those thrilling accounts of an unknown culture had whetted their appetites for undertaking their own exploration of these lost ruins. Stephen's adventuresome spirit and unquenchable thirst for the mysterious urged him forward. He recognized that Catherwood's training in architecture and artistic abilities would bring his writings to life; together they planned their journey into the unknown.

To enable easier passage through areas or dangers they might face, Stephens asked President Martin Van Buren to appoint him as special ambassador to the Federal Republic of Central America, comprising Honduras, Guatemala, El Salvador, Nicaragua and Costa Rica. The title was merely a formality to establish easier passage within the largely unexplored countries. He had no desire to conduct diplomatic duties, only to search for archaeological remains. Stephens was rigorous in his preparations to ease their difficult journey but could not possibly foresee the ensuing problems they would encounter in the dense tropical jungles. The dangers were unseen and unimaginable.

Stephens and Catherwood arrived in Belize, a town of 6000, equipped with basic surveying gear and machetes, along with drawing supplies, paper and paints. Upon entering the "untidy, shabby, tropical port on the Belize River, they sank to their boot tops in the muddy streets". Belize was a small village that sat along the length of the seacoast; its inner border faced "the chaos of disorder" that was Central America. They hired a local guide and the team embarked from the oldest settlements of the New World to begin their extensive explorations that eventually stretched from Copan in the south to Chichen Itza in the northern lowlands.

At that time only a few Maya ruins had already been visited but briefly, only Copan, Palenque and Tikal, (called Topoxte or Tayasal) which was buried somewhere deep within the tropical jungle. The ancient Maya civilization was barely understood, just a foggy presence on history's pages. Most early cities and tall pyramids had been totally overgrown and appeared as merely undistinguishable forested hills. The newcomers had no precise maps to guide them; they had no proper roads to follow. They had no experienced assistance, just a local guide and a few men to carry their valuable equipment. Often there was little food available; they had no protection from poisonous snakes, spiders, mosquitoes, and other bothersome insects. As they traveled, they questioned local inhabitants for information to guide them to a source for food, shelter or the next area of ruins.