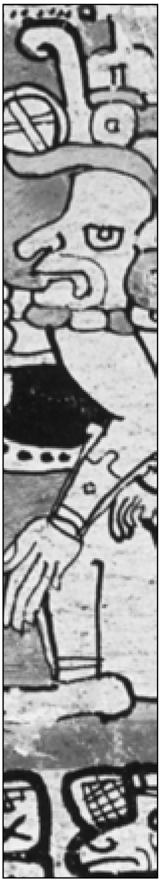
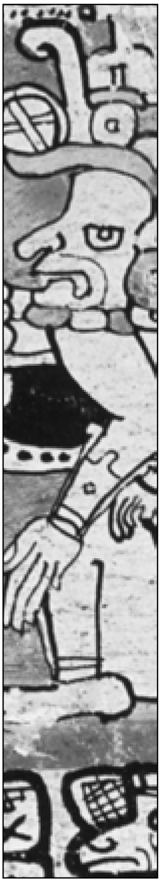


Contents

CHAPTER 1

Research Methodologies and New Approaches to Interpreting the Madrid Codex

Gabrielle Vail and Anthony Aveni



THE MADRID CODEX IN PERSPECTIVE

Progress in scholarly endeavor often comes in spurts. Unexpected revolutionary breakthroughs are followed by long periods of what historian of science T. S. Kuhn calls "normal science," in which the community of investigators rallies around a new paradigm, applies it, and tests it out, each according to his or her particular purview—until another breakthrough occurs. Such has been the case in the decipherment of Maya writing. The first wave of progress broke around the turn of the nineteenth into the twentieth century with the discovery and documentation of Maya stelae and the publication of the earliest facsimiles of the handful of pre-Columbian bark paper texts, or codices. The profusion of numbers and dates, the easiest to decipher because of their pronounced regularity, led early scholars—including Sylvanus Morley, Ernst Förstemann, and later Eric Thompson—to the view that the Maya elite were little more than pacific worshippers of esoterica: "So far as this general outlook on life is concerned, the great men of Athens would not have felt out of place in a gathering of Maya priests and rulers, but had the conversation turned on the subject of the philosophical aspects of time, the Athenians—or, for that matter, representatives of any of the great civilizations of history—would have been at sea" (Thompson 1954:137). These devotees of time seemed more preoccupied with the cycle of time itself than with any reality that might be conveyed by its passage.

It is no surprise, then, that much of the research on Maya inscriptions in the first half of the twentieth century was directed toward collecting and categorizing gods and time rounds. The discovery of emblem glyphs specific to certain places or lineages and date patterns in the monumental inscriptions corresponding roughly to the mean length of a human lifetime by investigators including Heinrich Berlin (1958) and Tatiana Proskouriakoff (1960, 1963, 1964) constituted a second wave of progress that reached the shores of Maya scholarship around mid-century. Bigger-than-life effigies on the stelae of Copán, Quiriguá, and Tikal ceased to be regarded as abstract gods of time and came to be known instead as real people—members of the ruling class with names such as Shield Pacal and Yax Pasah. Elite scribes wrote their life histories—their real and imagined ancestry—on the remaining sides of the great stone trees of time that also displayed their imposing countenances. As a result of the intense interdisciplinary focus on the monumental inscriptions undertaken at the first several Palenque Round Tables, which were led by Linda Schele and Merle Greene Robertson and attended by scholars including David Kelley, Michael Coe, David Stuart, and Peter Mathews, the Maya began to acquire a history of their own. By the 1990s, epigraphers announced that only a third of the glyphs were left undeciphered; their research revealed intricate dynastic histories along with a detailed chronology of interactions among the Maya polities. After a century of progress in decoding, the Maya monuments have given up most of their secrets. As a result, the calendar has emerged not only as a device for reckoning the longevity of rulership but also as an instrument that chartered its validation in deep time by reference to key points in the time's cycle, such as *k'atun* endings and celestial events that punctuated the temporal manifold.[1]

Meanwhile, advances in the study of the inscriptions in the codices have been far more gradual as a result of two principal developments. First, the systematic destruction of these documents by extirpators of idolatry early in the Colonial period has left a dearth of such textual material. Second, the content of the surviving documents, which deals largely with divinatory practice communicated among a priestly cult, is far more difficult to decipher than the straightforward history written on the stelae, which was intended to be read (likely by an interpreter) and viewed by the commoner. The codices contain private (esoteric) rather than public knowledge; however, their content is extremely important, for within these texts lies information on Maya belief systems involving cosmology, astronomy, and religious practice.

The Maya Codices: Discovery and Content

The Madrid Codex is the longest of the surviving Maya codices, consisting of 56 leaves painted on both sides, or 112 pages. The Maya codices are formatted as screenfold books painted on paper made from the bark of the fig tree that were produced by coating the paper with a stucco wash and then painting it with glyphs and pictures. Its glyphic texts, like those of the other codices, are written in the logosyllabic script found throughout the lowland Maya area from the second century A.D. to the fifteenth century. The populations inhabiting this region at the time of Spanish contact in the early sixteenth century were Yucatec and Ch'olan speakers (Figure 1.1).

Today the Yucatecan languages (including Yucatec, Lacandón, Mopán, and Itzá) are spoken throughout the Yucatán Peninsula, as well as in lowland Chiapas, Petén, and Belize. Speakers of the Ch'olan languages Ch'ol and Chontal occupy the Tabasco lowlands, whereas the Eastern Ch'olan language Ch'orti' is spoken in Honduras near the archaeological site of Copán. Ethnohistoric evidence supports the existence of another Eastern Ch'olan language, Ch'olti', during the Colonial period, but it became extinct during the eighteenth century.

Despite the fact that Spanish colonial sources document a flourishing manuscript tradition in the early sixteenth century, the Madrid Codex is one of only three or four known examples of a Maya hieroglyphic manuscript. It was discovered in Spain during the nineteenth century; how and when the manuscript reached Europe is uncertain (but see Chapter 3). Scholars generally agree that it was most likely sent from the colonies to Spain during the Colonial period. At the time of its reappearance in the nineteenth century it was found in two parts, which had become separated at some unknown point in the past. One section (the Troano) first came to scholarly attention in 1866, and the second (the Cortesianus) was offered for sale the following year (Glass and Robertson 1975:153). Léon de Rosny, who studied both sections, first recognized that they belonged to the same manuscript in the 1880s. When he compared what we now call page 78, from the Codex Troano, and page 77, from the Codex Cortesianus, he realized that they were successive pages from a single codex (Rosny 1882:80–82). Both sections were acquired by the Museo Arqueológico in Madrid, where they became known as the Madrid Codex. The codex is currently being curated by the Museo de América, which was established in 1941.[2]

Prior to the resurfacing of the Madrid manuscript, two other codices painted in the same stylistic tradition came to light in European collections—the Dresden Codex in 1739 and the Paris Codex in 1832 (Grube 2001; Love

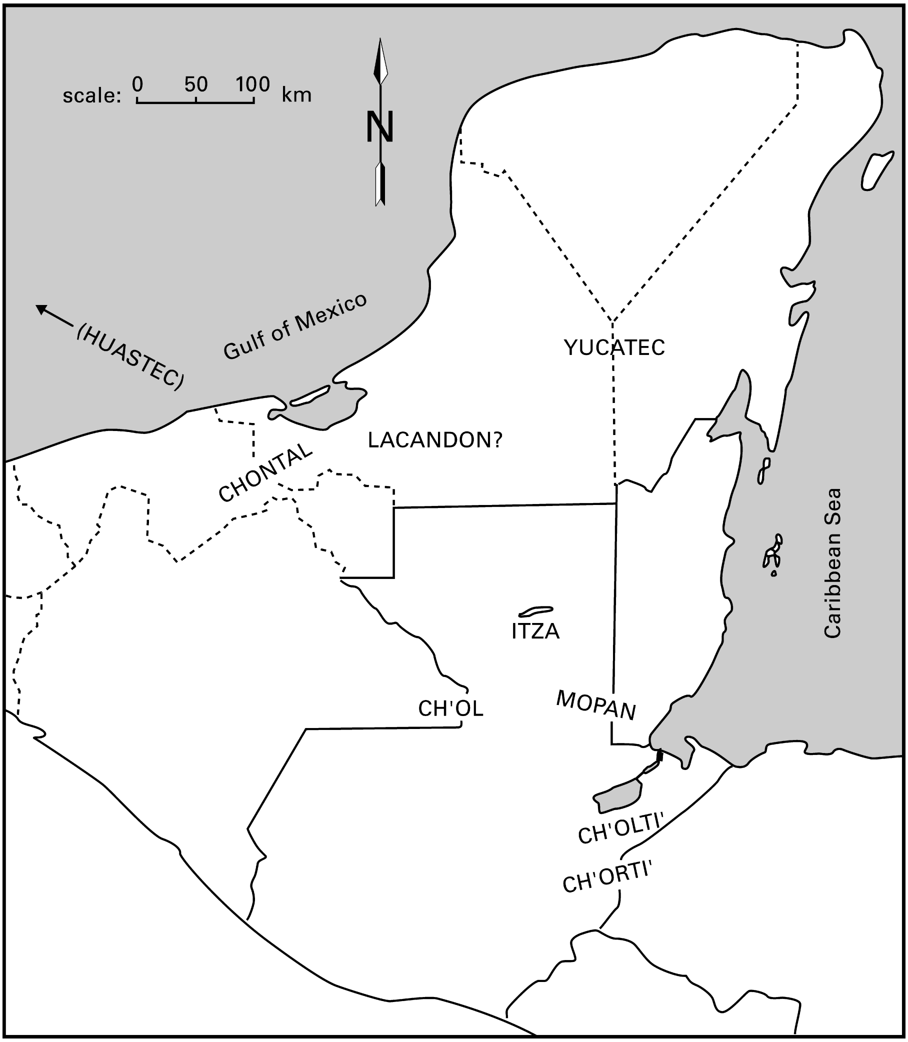


Figure 1.1 Map of the Maya area, showing linguistic groupings at the time of the Spanish Conquest (after V. Bricker 1977:Fig. 1).

2001).[3] A fourth codex, known as the Grolier, was purportedly discovered in a cave in the Mexican state of Chiapas in the 1960s, along with several other pre-Columbian artifacts, including several unpainted sheets of fig bark paper. It was acquired by a Mexican collector and shown to Michael Coe, who announced its discovery at the opening of an exhibition on Maya art and calligraphy sponsored by the Grolier Club of New York in 1971 (Carlson 1983; Coe 1973). Although Coe believed the manuscript was authentic, other scholars, including

Thompson (1975:6–7), were convinced it was a fake. In response to the C-14 date of A.D. 1230 ± 130 reported by Coe (1973:150) for a fragment of unstuccoed bark paper found in association with the codex, Thompson (1975) pointed out that this date has no relevance to when the manuscript was actually painted. He believed the codex was made by modern forgers who had access to a blank cache of fig bark paper like the sheets discovered with the Grolier Codex.

In the 1980s John Carlson (1983) published an analysis of the codex that convinced many Mayanists of its authenticity; however, recent studies by Claude-François Baudez (2002) and Susan Milbrath (2002) have again raised the question of whether the codex is a modern forgery. We believe this issue can be resolved only through an analysis of the chemical composition of the paints and await the results of a study of the document currently being undertaken by scholars in Mexico City (reported by Milbrath 2002:60).

Although colonial reports indicate that Maya codices were concerned with a variety of subjects, including historical accounts, the extant Maya manuscripts are almost exclusively ritual and astronomical in content. This information is presented in the form of what scholars have traditionally called *tables* or *almanacs,* the two distinguished by whether they include dates in the absolute (Long Count) calendar used by the Maya (tables) or are organized in terms of the 260-day ritual calendar used throughout Mesoamerica for divination and prophecy (almanacs).[4] Even though they contain no Long Count dates, almanacs as well as tables frequently refer to astronomical events, such as solar eclipses or the position of certain planets and constellations in the night sky. Both types of instruments combine hieroglyphic captions with pictures that refer to specific days, within either the ritual calendar or the Long Count.[5]

Although the Madrid Codex has no astronomical tables, it is the longest of the surviving Maya manuscripts, containing approximately 250 almanacs concerned with a variety of topics, including rain ceremonies associated with the deity Chaak, agricultural activities, ceremonies to commemorate the end of one year and the start of the next, deer hunting and trapping, the sacrifice of captives and other events associated with the five nameless days (Wayeb') at the end of the year, carving deity images, and beekeeping. As a group, these activities comprised the yearly round, as well as a series of rituals performed to accompany these events. Although some of the Madrid almanacs were undoubtedly used for divination within the 260-day ritual calendar, others referred to events that referenced much longer periods of time (see Chapter 8).

The Dresden and Paris codices contain a number of almanacs that are similar to those in the Madrid Codex, as well as some unique instruments such as the section of the Paris Codex that highlights *tun* and *k'atun* rituals and the astronomical tables found in the Dresden Codex. These tables were designed to track solar and lunar eclipses, the appearance and disappearance of Venus in the night sky, and the positioning of Mars in the zodiac. Astronomical subjects are represented in both the Paris and Grolier codices as well. A series of thirteen constellations representing the Maya "zodiac" appears on pages 23–24 of the Paris Codex, and the Grolier Codex contains an incomplete almanac that has calendrical parallels with the Dresden Venus table.

The Madrid Codex, although lacking Long Count dates, incorporates a variety of astronomical information into its almanacs. Like the Dresden tables, these almanacs track the movement of Mars, solar and lunar eclipses, and seasonal phenomena such as the summer solstice and the vernal equinox. Pages 12b–18b, for example, chart five successive solar eclipses (H. Bricker, V. Bricker, and Wulfing 1997), and Gabrielle Vail and Victoria Bricker (Chapter 7) propose that pages 65–72, 73b may represent the Madrid's counterpart to the Dresden eclipse table. Research by the Brickers and their colleagues (V. Bricker and H. Bricker 1988; H. Bricker, V. Bricker, and Wulfing 1997; V. Bricker 1997a; Graff 1997) suggests that many of these events can be placed into real time. The proposed dates range from the tenth to the fifteenth centuries, with the tenth century dates believed to have historical significance and the fifteenth century dates to be contemporary with the painting of the manuscript. Compilations of texts from a wide time period are common in Maya written sources (cf. V. Bricker and Miram 2002 re. the *Book of Chilam Balam of Kaua*) and may be compared to anthologies of English literature in which works by authors from different centuries (e.g., Chaucer, Shakespeare, Keats) are all included in one volume. A detailed discussion of the calendrical structure of Maya almanacs can be found in Chapter 5, "Maya Calendars and Dates: Interpreting the Calendrical Structure of Maya Almanacs."

The Maya Codices: Historical Overview

The extant Maya codices are generally believed to have been painted in the Late Postclassic period (c. 1250–1520), although hieroglyphic writing continued to be practiced in secret for several generations after the Spanish Conquest. They reflect the concerns of a society that underwent significant changes at the end of the Classic era, including the abandonment of centers throughout the Maya lowlands during the ninth through eleventh centuries, a process Andrews, Andrews, and Robles C. (2003:153) characterize as a "pan-lowland collapse."[6] Two scenarios have been proposed for the northern lowlands: large-scale architectural activity may have ceased for more than a century, or, as new data suggest, monumental construction may have begun at Mayapán and in coastal Quintana Roo earlier than once thought, meaning there was no significant gap in public construction activities as previously believed (Andrews, Andrews, and Robles C. 2003:152). Mayapán's occupation has traditionally been dated from c. A.D. 1200 to 1441, but a growing body of evidence indicates it may have begun by c. A.D. 1050 (Milbrath and Peraza Lope 2003). Although Mayapán

Figure 1.2 Map of the Postclassic Maya area, showing relevant archaeological sites (redrawn by Thomas Cooper-Werd after an original by Anthony P. Andrews).

had only a remnant population at the time of the Spanish Conquest, a number of smaller centers established during the Postclassic period, including Tulum on the Caribbean coast and sites on the island of Cozumel, were still inhabited when the Spanish first made contact with the Maya in the early sixteenth century (Sharer 1994:408–421; see Figure 1.2 for location of sites mentioned in this chapter).

The history of the Spanish conquest of the Americas is considered in detail in numerous publications. The Maya, unlike many of the other cultures encountered, proved extremely difficult for the Spanish to conquer. Despite the Europeans' superior weaponry, the conquest of the Yucatán Peninsula required almost twenty years (from 1527 to 1546), and the Itzá Maya, who lived in the Petén region of Guatemala, were not conquered until 1697. This was the result of many factors, not least of which was their remote location; their capital, Ta Itzá (or Tayasal as it was known to the Spanish), was located on a remote island in the heart of the Petén rainforest (Sharer 1994:741–753).

According to Spanish ecclesiastical sources, principally Diego de Landa, the second Bishop of Yucatán, the Maya were actively producing codices at the time of the Conquest (Tozzer 1941:27–29). Hieroglyphic writing, seen as an act of idolatry, was soon banned by the Catholic clergy. Nevertheless, in spite of efforts by Bishop Landa and the Inquisition to completely eradicate idolatrous practices, hieroglyphic texts continued to be written in secret for several generations after the Conquest (Coe and Kerr 1997:219–223; Thompson 1972:Ch. 1; see Chapter 3 for a discussion of Sánchez de Aguilar's [1892] and other firsthand testimony).

Several of the Spanish chroniclers describe seeing Maya books. One of the earliest descriptions available comes from Peter Martyr D'Anghera in 1520, who examined the Royal Fifth sent by Cortés to Charles V from Veracruz (Thompson 1972:3–4).[7] Thompson (1972:4) concludes from Martyr's statement that he "saw and described Maya books, although there may well have been others from the Gulf coast in the consignment." In his account, Martyr (1912 [1530]) points out that Cortés came across several codices on the island of Cozumel in 1519; Coe (1989:7) believes these were the codices included in the shipment Martyr examined in Valladolid.

Other sixteenth- and early seventeenth-century sources that discuss Maya codices from Yucatán include Landa in c. 1566 (Tozzer 1941:28–29), the author of the *Relación de Dohot* in 1579 (*Relaciones de Yucatán* 1898–1900:II:210–211), Antonio de Ciudad Real (1873:2:392) in c. 1590, and Sánchez de Aguilar (1892) in 1639. Avendaño y Loyola (1987 [1696]:32–33), writing at the end of the seventeenth century, notes: "I had already read about it in their old papers and had seen it in their *anahtes* which they use—which are books of barks of trees, polished and covered with lime, in which by painted figures and characters they have foretold their future events." His description has been interpreted to suggest that he had firsthand knowledge of bark paper codices that contained native calendars and *k'atun* prophecies (Roys 1967:184).

Hieroglyphic manuscripts were not limited to the northern lowlands during the Colonial period. Several, for example, were discovered at Tayasal following its defeat by the Spanish in 1697. Reports indicate that some of these were taken by Ursúa, the captain of the Spanish forces (Villagutierre Soto-Mayor 1983 [1701]:394), although their subsequent history remains unknown. Divinatory almanacs were still being used by the Quiché of highland Guatemala during this time period as well, as suggested by Francisco Ximénez (1967 [c. 1700]:11), who describes books with divinatory calendars with "signs corresponding to each day." According to Dennis Tedlock (1992:230), these books may have been similar to the *Ajilab'al Q'ij* (Count of Days), a Quiché manuscript dated to 1722 (Carmack 1973:165–166) that contains alphabetic versions of 260-day almanacs like those found in the remaining hieroglyphic Maya codices.

NEW APPROACHES TO UNDERSTANDING THE MADRID CODEX

Research on the Madrid Codex has been ongoing for a number of years by a diverse group of scholars whose specialties include anthropology, archaeology, art history, astronomy, linguistics, and epigraphy. The two workshops held at Tulane University in the summer of 2001 and the spring of 2002 were organized to address questions that had recently been raised concerning the provenience and dating of the Madrid Codex (see discussion in the next section). Specialists in each of the fields mentioned, as well as a historian, were invited to prepare papers discussing this issue, which were presented during the first workshop and served as the focal point of discussions. At the closing of the workshop, Elizabeth Boone and Martha Macri served as discussants, offering valuable comments and insight about how the research presented on the Madrid Codex could be integrated within the broader framework of Mesoamerican studies.

Questions raised during the first session paved the way for a second workshop. Participants were asked to revisit their papers, and the organizers assigned commentators from among the presenters to summarize and critique the ideas and arguments raised by each of the authors during the workshop. As a result of this exchange and the commentary offered by Susan Milbrath, who attended the 2002 workshop as a discussant, the present volume took shape. Rather than simply a collection of papers on related topics, it represents the result of an intensive interchange and discussion over a period of several years. It also incorporates an overview chapter by John Pohl, who did not participate in the workshops directly but was invited to write an essay to examine how our studies of the Madrid Codex can be applied to other areas of Mesoamerican research.

The workshops held at Tulane University produced a number of interesting papers that we believe open up new ways of reading, dating, and interpreting the general significance of this long-neglected document. Among the breakthroughs achieved and presented in the chapters that follow are a method for dating the Madrid Codex as a pre-contact manuscript through an analysis of a colonial "patch" found on one of its pages; the possibility of reading the intervals in some almanacs as *haab'* (year) based rather than *k'in* (day) based;

the disclosure of a number of possible iconographic and calendrical connections between the Maya and central Mexican codices of the Borgia group; and the further extension of what we have come to call "real-time" interpretations of some of the Madrid almanacs. The latter idea challenges the long-accepted notion that, except for an occasional Venus or eclipse table, the calendrical matters depicted in the codices roll round and round with no specificity regarding phenomena fixed in a given year or years.

The new approaches considered in this volume can be grouped into three themes, which form the subject of the following discussion: Issues in the Provenience and Dating of the Madrid Codex, Calendrical Models and Methodologies for Examining the Madrid Almanacs, and Connections Among the Madrid and Borgia Group Codices.

Issues in the Provenience and Dating of the Madrid Codex

Although the historical record holds tantalizing clues, we have no direct evidence concerning the origin and early histories of the Dresden, Paris, and Madrid codices, and the authenticity of the Grolier Codex remains in question. Researchers have found, however, that the manuscripts themselves provide a rich source of information to formulate and test hypotheses about the dating and provenience of the Maya codices, through an examination of the stylistic, iconographic, hieroglyphic, and calendrical data contained in the manuscripts.

In stylistic terms, the Dresden, Paris, and Madrid codices appear to date to the Late Postclassic period (c. A.D. 1200–1500). They share a number of similarities with murals discovered at Postclassic sites in Yucatán such as Tulum, Tancah, Santa Rita, and Mayapán, many of which are characterized as Mixteca-Puebla in style (Milbrath and Peraza Lope 2003:26–31; A. Miller 1982:71–75; M. Miller 1986:191–194; Quirarte 1975; Taube 1992:4).[8] Similarly, the Maya codices show evidence of the Mixteca-Puebla, or "International," tradition (Graff and Vail 2001:58; see Part III, this volume). On the basis of these stylistic analogies, scholars have generally agreed that the Dresden, Paris, and Madrid codices are prehispanic in date. In 1997, however, the pre-Conquest date of the Madrid Codex was brought into question. Based on two separate lines of evidence, Coe and Kerr (1997:181) and James Porter (1997:41, 43–44) suggested the possibility that the Madrid Codex may have been painted in the Petén region of Guatemala after the conquest of Yucatán (see also Thompson 1950:26; Villacorta C. and Villacorta 1976:176). This proposal is challenged by Graff and Vail (2001) and by several of the chapters in this volume (see Part I, "Provenience and Dating of the Madrid Codex").

To better understand the parameters of the debate, this section offers a review of research on this topic. We begin by discussing theories concerning the dating and provenience of the extant Maya hieroglyphic manuscripts.

The Dresden Codex may be the earliest of the Maya codices (with the possible exception of the Grolier Codex, which Carlson [1983:41] attributes to the Early Postclassic period).[9] Thompson (1972:15–16) proposed a date of A.D. 1200–1250 for the painting of the manuscript and a provenience in Chichén Itzá. Its astronomical tables contain Long Count dates that appear historical in nature, ranging from the eighth to the tenth centuries A.D. (V. Bricker and H. Bricker 1992:82–83; Lounsbury 1983). Dates interpreted to be contemporary with the use of the codex fall in the fourteenth and early fifteenth centuries (see discussion in V. Bricker and H. Bricker 1992:83); Linton Satterthwaite (1965:625) suggested a thirteenth- or fourteenth-century date, whereas Merideth Paxton (1986:220) prefers a mid-thirteenth-century date. According to Thompson (1972:16), the Paris Codex was most likely drafted at one of the east coast sites such as Tulum or at Mayapán sometime during the thirteenth to fifteenth centuries A.D. Bruce Love (1994:9–13) agrees that Mayapán represents a likely provenience for the manuscript, based on similarities to stone monuments at the site. His analysis indicates that the codex could have been painted as late as A.D. 1450.[10]

Most researchers have suggested a pre-Conquest date for the Madrid Codex as well (V. Bricker 1997b:1; Glass and Robertson 1975:153; Graff and Vail 2001; Taube 1992:1; Thompson 1950:26, 1972:16; Vail 1996:30), although some evidence has been cited in favor of a post-Conquest date. For example, Thompson, in his *Maya Hieroglyphic Writing: Introduction* (1950), entertained two possible models relating to the provenience of the manuscript: (1) that it was painted in northwestern Yucatán in the fifteenth century, or (2) that it was found by the Spanish at Tayasal following the 1697 conquest (Thompson 1950:26).[11] Later, however, he rejected the second theory, arguing that the yearbearer set found in the codex (see discussion in Chapter 5) provided support for a provenience in western Yucatán (Thompson 1972:16). In several recent publications, Coe (in Coe and Kerr 1997:181) and Porter (1997:41, 43–44) have reopened the discussion of a Tayasal origin and a post-Conquest dating for the Madrid Codex.

Coe finds support for the idea that the Madrid Codex comes from the seventeenth-century Petén on the basis of paper with Latin writing on page 56 of the codex (Plate 1), which he considers integral to the manuscript. Although much of the Latin text cannot be read, Coe (in Coe and Kerr 1997:181) interprets a fragmentary spelling of a name (". . . riquez") as possibly referring to the Franciscan missionary Fray Juan Enríquez, an idea suggested originally by Stephen Houston in a personal communication to Coe. Because Enríquez was killed in the town of Sacalum in 1624 during an attempt to conquer Tayasal, Coe reasons that the piece of paper with his name in the Madrid manuscript indicates that the codex must have been produced after this date.

Following a different line of reasoning, Porter (1997:41, 43–44) also argues in favor of a post-Conquest dating for the codex and a provenience in Tayasal.

His argument is based on two objects depicted in the manuscript—what he interprets as a European weapon on page 39b and an idol representing a horse on page 39c. Porter believes these two scenes can be related directly to Hernán Cortés's visit to Tayasal in 1525, thereby indicating that the codex was painted at some point between 1525 and the conquest of Tayasal in 1697.

Other iconographic studies call these conclusions into question. In a detailed analysis of the material culture represented in the Madrid Codex, Donald Graff (1997:163–167, 2000) was able to isolate several temporally diagnostic artifacts pictured in the manuscript, including specific varieties of incense burners, several drums, a rattle, and a weaving pick. His review of the archaeological literature indicates that these items postdate A.D. 1300, thereby suggesting that the Madrid Codex was produced after this date (Graff 2000). Graff's findings, however, cannot be used to establish that the codex is a pre-Conquest manuscript, since the almanacs it contains may have been copied from earlier screenfolds that pictured Late Postclassic artifacts. Nevertheless, comparisons with the material culture depicted in the Dresden Codex, together with dates suggested by archaeoastronomical studies (summarized in Graff and Vail 2001), provide convincing evidence that the Madrid Codex dates to the Late Postclassic period. Graff and Vail suggest a date in the mid-fifteenth century, which corresponds well with the artifacts represented iconographically, including those Porter (1997) ascribes to sixteenth- or seventeenth-century Tayasal. As Graff and Vail (2001:86) note, "[Porter's] identifications of the purported European blade on page 39b and of the idol of Tziminchac on page 39c are highly questionable and . . . both can be better explained within the framework of postclassic Maya culture."

Barring the possibility of time travel, the only way to resolve the question of whether the manuscript was painted before or after the Conquest is to determine whether the paper with the European writing is actually sandwiched between layers of Maya bark paper, as Coe and Kerr (1997) suggest, or is instead attached to the outer layer as an either accidental or intentional addition to the codex. The chapter by Harvey Bricker in this volume provides what we believe is a definitive answer to this question: the paper is a patch and therefore cannot be used to support a post-Conquest dating of the manuscript. Bricker's methodology and line of argumentation are detailed in Chapter 2.[12]

Other research methodologies have been used to develop hypotheses about where the Madrid Codex originated. Early studies concerning the language represented in the codical texts suggested a Yucatecan provenience for the Maya codices (Campbell 1984:5; Fox and Justeson 1984; Knorozov 1967:32). This supposition was called into question in the 1990s by Robert Wald (1994) and Alfonso Lacadena (1997), who found evidence of Ch'olan as well as Yucatecan vocabulary and morphology in the Dresden and Madrid manuscripts. More recent analyses (Vail 2000, 2001) based on patterns of verbal inflection and other morphological indicators reinforce earlier interpretations of a Yucatecan provenience for the Madrid Codex.

In her analysis of the lexical and morphological data from the manuscript, Vail found vocabulary indicative of both Yucatec and the Western Ch'olan languages (Ch'ol and Chontal), in agreement with Lacadena (1997), although she interpreted many of the "Ch'olan" items cited by Lacadena as logographs with both Yucatecan and Ch'olan readings. Additionally, both studies documented morphological features similar to those of Yucatec, Eastern Ch'olan (Ch'orti' and Ch'olti'), and Western Ch'olan. According to Vail's analysis, however, the former predominate, suggesting that the codex was probably painted in a Yucatec-speaking region.

The mixed nature of the texts lends itself to the following scenario. Like most Maya documents, the Madrid Codex consists of a compilation of almanacs and texts that were drafted by different scribes and may have been copied from earlier sources.[13] This is similar to the patterning seen in Colonial period Yucatec texts, such as the *Books of Chilam Balam*, which include copies of texts written over a period of several centuries (V. Bricker and Miram 2002). Because of the predominance of Yucatec morphology in the Madrid Codex, Vail proposes that several, if not all, of the scribes who drafted the manuscript were Yucatec speakers. She interprets the presence of passages that incorporate features from the Eastern Ch'olan languages as indications that certain texts represent copies from earlier manuscripts that were not updated by the copyist. This possibility receives support from Houston, Robertson, and Stuart's (2000) proposal that the Classic period Maya elite used Ch'olti'an (an Eastern Ch'olan language) as a lingua franca, whether they themselves were Yucatec or Ch'olan speakers. Examples of Eastern Ch'olan morphology in the Madrid Codex, Vail proposes, represent archaisms or holdovers from this Classic period tradition. There is much stronger evidence of Western Ch'olan influence, as evidenced by the presence of the Chontal spelling of the word for "rulership" (*ahawle*) throughout the Madrid texts and in several passages containing what may be Western Ch'olan morphology. These data indicate some level of contact between the Madrid scribes and the Western Ch'olan elite, which Vail interprets as potentially extremely important in terms of the history of the codex.

The patterning evident in the Madrid Codex parallels that seen in later texts—for example, the use of Spanish loan words (and sometimes complete clauses) in the colonial *Books of Chilam Balam* (V. Bricker 2000). As Victoria Bricker and Helga-Maria Miram (2002) have demonstrated, the *Book of Chilam Balam of Kaua* represents a compilation of European and native Yucatec texts. In some cases Spanish texts were copied without translation into the Kaua manuscript, although this often resulted in corrupted spellings. In other instances Spanish and Latin texts were translated into Yucatec, and there are also occasional examples of only partially translated texts. V. Bricker (2000) compares this to some of the hybrid Ch'olan and Yucatecan texts in the Maya codices, such as those discussed by Vail (2000).

Vail's analysis suggests a Yucatecan provenience for the Madrid Codex, but it does not rule out the possibility that it was painted in the Tayasal area of the Petén, since this region was occupied by Itzá speakers (Itzá and Yucatec are closely related languages that are both members of the Yucatecan language family). This issue is addressed in detail in the chapters by John Chuchiak and Merideth Paxton. Chuchiak, whose specialty is colonial Mexican paleography, challenges Coe and Kerr's interpretation of the text on page 56 (of which they identify two words, "*prefatorum*" and ". . . *riquez*") as a possible reference to a Franciscan missionary who was killed in the Petén village of Sacalum in 1624, as discussed earlier. After examining the handwriting on the patch, as well as the content of the remaining text, he proposes that the patch once contained a handwritten Papal Bull of the Santa Cruzada. The style of the handwriting indicates that the text was most likely written between 1575 and 1610. Although most of the text is completely eroded, the twenty-five words that are still partially legible are entirely consistent with the interpretation that the page is part of a Bull of the Santa Cruzada. Moreover, it seems to mention a specific prefecture [*prefatorum* in the text]: Don Martin de Enriquez de Almaza [. . . *n Enriquez d(e)* . . .], who served as the third viceroy of New Spain (1568–1580). Chuchiak argues that this combination of evidence indicates that the document originated in the northern part of the Yucatán Peninsula rather than in Tayasal (see Figure 1.2), which was not part of the Viceroyalty of New Spain at the time.

Paxton, who studied the iconography and material culture in the manuscript in relation to ethnohistoric documentation from Tayasal and the northern Yucatán Peninsula, reached a similar conclusion. Rather than suggesting a Tayasal provenience, the iconographic evidence instead suggests closer links to sites in the northern area, including Mayapán, Chichén Itzá, and the east coast settlements of Tulum, Tancah, and Santa Rita. These findings are in agreement with Graff's (1997, 2000; Graff and Vail 2001) conclusions based on the material culture depicted in the manuscript, as well as with Chuchiak's determination regarding the provenience of the patch.

Calendrical Methodologies and Models for Exploring the Madrid Almanacs

For more than a quarter century, Thompson's (1972) commentary on the Dresden Codex has served as the methodological archetype of calendrical studies. Following earlier investigators, Thompson viewed the *tzolk'in*, or 260-day sacred round, as the primary structural unit and the *k'in* (day) as the unit of currency in the many almanacs that make up the codices. Thompson also argued that the almanacs functioned in interminable repetitive cycles in the manner of our 7-day week cycle, that is, without regard to any other temporal reality: their purpose was "to bring all human and celestial activities into relationship with the sacred almanac by multiplying the span they were interested in until the figure was also a multiple of 260" (Thompson 1972:27). In stark contrast, Thompson viewed the so-called tables on pages 24, 46–50, and 51–58, concerned with the movement of Venus and eclipses, as formalisms capable of achieving even more than this. Although the primary emphasis in these latter texts was on cyclic time, their overriding purpose was to reach real-time dates of, for example, heliacal rising/eclipse warning for the purpose of acquiring the omens that attended them. Although Thompson admitted that a handful of Long Count dates on other pages of the Dresden might serve to fix the subject matter therein in real time, he said little more on the topic. Since Thompson, the acid test for an astronomical table (which might better be called an astronomical ephemeris or event predictor) has been whether it fit the picture/interval format evident in the Venus and eclipse tables. This rigid criterion played a large role in Thompson's rejection of the hypothesis that Dresden 43b–45b constituted a Mars table. The contributors to this section of the present volume challenge such a dichotomy between almanacs and ephemerides.

We have three distinct advantages not possessed by our not-so-distant predecessors. First, an accurate correlation whereby one can convert Maya to Christian time and vice versa has now been established. Few scholars acquainted with the literature would doubt that the correlation constant is either 584,283 or 584,285 days (Thompson 1935, 1950: Appendix II). The former, which offers greater consistency with the ethnohistoric record, will be assumed throughout the studies reported here; however, adding two days to it has virtually no impact on the arguments and results presented. Second, advances in calendrical decipherment have resulted in a relatively complete understanding of most of the cycles that make up the calendar. And third, we have the advantage of enormous computational power thanks to the personal computer. It is almost beyond one's imagination to comprehend the length of time that must have been required for a turn-of-the-century scholar like Eduard Seler or Ernst Förstemann to perform these computations by hand. But this power can easily be abused if it is not accompanied by rigor and thoroughness when applied.

The careful reader of the chapters presented in Part II in particular will note the embeddedness of astronomy in the related subject matter. Unlike the Venus table, in which astronomical observation drives the analysis of an almanac concerned almost exclusively with charting a planetary body, in many of the almanacs considered here astronomical phenomena appear along with other natural and civic events in a circular pattern that can be anchored in real time and then adjusted to fit a later period. This is not an unreasonable disposition, for it is exactly the way traditional almanacs, including our own "Farmer's Almanac," operate. For example, if an almanac pictures the rain god Chaak in various guises—say, holding a planting stick, pouring out rain, or scattering seeds—and if one of the frames that pictures him also contains a glyph of the same form as what has been recognized as the planet Venus when it appears in the Venus table or as an eclipse glyph when it appears in the eclipse table, then it is fair to assume that this almanac, although primarily concerned with rituals pertaining to the planting season, might be timing one such ritual in connection with a particular astronomical event.

As we understand the codices to have been used, it is not difficult to believe some of the almanacs, like their counterparts in the histories of other cultures, were revised and updated to fit with a real-time framework in which events from different domains of the natural and social worlds had become out of joint. If the transformation of our understanding of monumental texts from mythic to real time constituted a great advance in our understanding of Maya history, the same may well hold true for at least some of the iconography in the codices.

In addition to the endless circularity of 260-day–based time in the codices, another Thompson dictum challenged in the present text concerns the universally applied assumption that all distance numbers are days.[14] In our view, this assumption has blocked the road of progress on two counts. First, it offers no sensible way of interpreting much of the seasonally based iconography. How can planting almanacs that cycle, for example, every 52 days be reconciled with weather phenomena depicted in the pictorials that recur over much larger (365-day) cycles? Second, how can one account for the apparent backslide of the 365-day year with respect to the 365.2422-day seasonal cycle we experience? One answer to the second question has led to the proffering of a multitude of schemes relating to a Maya leap year, despite ample evidence to the contrary in the historical record. One way out of the time-counting conundrum on both points explored in this section is that Maya time was not reckoned exclusively in days in the codical almanacs.

Three chapters center on the calendrical structure of the Madrid Codex. Anthony Aveni's contribution focuses attention on a subject matter that exists in profundity in all codical texts yet oddly enough scarcely seems ever to have been addressed—the role of numbers in the Maya codices, specifically the intervals connecting *tzolk'in* dates in the Madrid and Dresden almanacs. Almanacs are categorized according to a four-class taxonomy that describes intervallic structural patterns in order of increasing complexity. Archetypal almanacs, which compose the first class, contain the simplest, most symmetric, and repetitive arrangements of intervals (e.g., bipartite [13, 13], quadripartite [13, 13, 13, 13], or quinquepartite [13, 13, 13, 13, 13] almanacs). At least three other classes of almanacs might have descended from this archetype, including (1) expanded almanacs, in which the 13s became further divided; (2) expanded almanacs that have been shifted to a new starting point; and (3) expanded/shifted almanacs, in which an almanac of the second type has been modified by having one or two days added or subtracted. Motivations for the changes that result in one or another form include the need to arrive at or avoid a particular date, astronomical events requiring targeting, or numerological rules emanating from pure considerations of number properties. The last alternative closely parallels the Pythagorean view that there exists a "science of numbers" apposite to their use to tally quantities of things—in this case, time.

In the second part of his study, Aveni documents the presence of fifteen pairs of parallel, or cognate, almanacs in the Dresden and Madrid codices on the basis of their intervallic sequences. Each pair is categorized according to the taxonomy, and subtle differences are examined to determine, where possible, which has chronological primacy. Almanacs in which one of the members of the pair has been dated in real time by reference to specific astronomical events provide the most promising examples for determining which is the earlier of the two.

Aveni examines one such almanac pair, the cognates on Madrid 10a–13a and Dresden 38b–41b, in detail in light of the dating proposed by V. Bricker and H. Bricker (1986) for the latter almanac. His analysis indicates that the Madrid almanac postdates the Dresden almanac by 131 years and that the subtle differences in the iconography and intervallic structure of the Madrid example represent intentional changes made to provide a better fit with the astronomical and meteorological events at the later date. As they stand, almanacs such as these and others with astronomical content, including M. 10bc–11bc and M. 12b–18b (H. Bricker, V. Bricker, and Wulfing 1997; V. Bricker and H. Bricker 1988), seem to be historical rather than predictive in nature. These almanacs contrast with the ritual almanacs discussed in Vail's chapter, which are seen as having primarily a prognosticatory function.

The focus of Chapters 7 and 8 is on *haab'* dates identified in the Madrid Codex that have previously gone unrecognized. In Chapter 8, Gabrielle Vail introduces a new methodology for interpreting the calendrical structure of Maya almanacs based on a model illustrating how different categories of almanacs could have functioned in terms of scheduling yearly events in the 52-year Calendar Round cycle. This interpretation differs substantially from the long-standing belief that Maya almanacs represent 260-day repeating cycles. Nevertheless, empirical evidence in the form of the *haab'* dates mentioned earlier suggests that certain almanacs were intentionally structured with longer cycles of time in mind.

Although only a handful of Maya almanacs contain explicit *haab'* dates, this model may be applied more generally to almanacs in the Maya codices that meet certain conditions. As Vail (2002) demonstrates, both 5 × 52-day and 10 × 26-day almanacs contain an underlying structure that permits them to be used to schedule events in the 52-year Calendar Round. This can be achieved by interpreting the intervals associated with an almanac as representing not only the number of days between successive frames but also the number of years, or *haab's*. Vail suggests that almanacs that include a series of frames with repetitive iconography (in which the activity remains the same but the deity changes) and texts or imagery that can be related to *haab'* rituals discussed in the ethnohistoric literature may have functioned as Calendar Round rather than 260-day instruments. Examples discussed in Chapter 8 include almanacs concerned with carving deity images, hunting rituals, and activities associated with the Maya New Year, including drilling fire and weaving new cloth, as documented in Landa's *Relación de las cosas de Yucatan* (Tozzer 1941). Embedding the 52-year cycle within the structure of 5 × 52 and 10 × 26-day almanacs allowed Maya daykeepers an accurate means of scheduling *haab'* ceremonies and seasonal activities such as planting and harvesting from one year to the next.

In addition to the *haab'* dates discussed by Vail, a number of others have recently been identified in the Madrid Codex. Of the forty possible *haab'* dates now recognized in the manuscript, the majority occur in the New Year's almanac on pages 34–37 and in the "Calendar Round" almanac on pages 65–72, 73b, as Vail and V. Bricker explore in Chapter 7. These data, like those in Chapter 8, challenge previous assumptions that Maya almanacs are focused exclusively on the *tzolk'in* calendar. Vail and V. Bricker's study suggests instead that they functioned to record ritual and astronomical events that repeated at intervals of varying lengths. The Calendar Round offered Maya scribes a useful means of structuring these events and activities. Chapters 7 and 8 explore how this was done and what these new ways of modeling the data suggest about Maya timekeeping and calendrical practices.

Connections Among the Madrid and Borgia Group Codices

The third part of the text centers on the experience of cross-cultural contact and the consequent reconfiguration of time. Here we find the Maya scribe under the influence of social change. Before the discovery of the Late Classic Cacaxtla murals, evidence of Teotihuacan-influenced dynasties at Copán and Tikal (see Introduction and Chapter 5 in Braswell 2003; Stuart 2000), and detailed studies of the inscriptions at Xochicalco, few Mayanists would dare to have sought substantive connections between the Maya world and the highlands of Mexico—even though *talud-tablero* architecture and Teotihuacan pecked cross petroglyphs had already been discovered in the Petén, and one spoke openly of the so-called Toltec occupation of Chichén Itzá. But studies reported in texts such as *Mesoamerica's Classic Heritage* (Carrasco, Jones, and Sessions 2000) demonstrate that there was, throughout Mesoamerican history, far more cultural contact and direct influence going both southeast and northwest than hitherto believed. Just as the period of discovery and exploration in the West demanded a reconsideration of time and calendar (the Gregorian reform, the concept of longitude, not to mention a whole technology that accompanied these changes), so too in Mesoamerica we must deal with the problem of indigenous time management—the need to seize and control time that comes with contact and consequent social intercourse. The sun passes the zenith on different dates in different latitudes, local rainy and dry seasons vary, and other celestial phenomena that remain constant over varying locales become obvious calendrical common denominators. As in ancient Babylon and Athens and later in the Renaissance in Europe, one can imagine the astronomer/daykeeper struggling to work out the details of how to keep order in maintaining the calendar in light of new knowledge acquired from faraway places.

As we attempt to place the Madrid Codex in context, we view its Late Postclassic provenance as a time of great activity and exchange of goods and ideas with central Mexico. Both archaeological and iconographic evidence suggests extensive connections with the Mexican highlands, as is especially evident at the Caribbean sites of Tulum, Tancah, and Santa Rita (A. Miller 1982). Moreover, recent excavations at Mayapán indicate the presence of Aztec merchants in the city, who apparently journeyed there to trade in the Maya blue pigment found only in that region (Milbrath and Peraza Lope 2003). Additionally, Milbrath and Peraza Lope attribute certain sculptural and artistic renovations at the site to Veracruz or central Mexican visitors. Murals discovered at Mayapán in recent years are stylistically very similar to the Mixteca-Puebla tradition, and there are additional connections with the Maya codices, particularly the Madrid Codex. The presentations on cultural connections in Part III agree with the findings from Mayapán and the east coast sites by revealing detailed similarities between the Madrid Codex and the Borgia group of codices from the central highlands of Mexico, dated independently to the late fifteenth century—the same approximate time period as the Madrid Codex (Aveni 1999; V. Bricker 2001).

Chapters by Bryan Just, Christine Hernández and Victoria Bricker, and Christine Hernández in this section highlight a number of specific iconographic and calendrical parallels between the Madrid Codex and the Borgia group. Just examines four almanacs in the Madrid Codex that have structural similarities to almanacs in the Borgia codices, including three *in extenso* almanacs that explicitly reference all 260 days of the *tzolk'in* (on pages 12b–18b, 65–72 and 73b, and 75–76) and a *trecena*, or 13-day, almanac on pages 77–78. These almanacs not only differ from others in the codex in terms of exhibiting Mixteca-Puebla structures, but they are also related by their physical location and orientation in the manuscript. Just's study gives us a real sense of how the folds that make up the codex were handled and manipulated in practice. He shows, for example, that the mixed orientation of pages 75–76 and 77–78 may have been used to cross-reference the two sides of the Madrid Codex, thereby functioning to link not only the four almanacs under discussion but a number of others with similar iconographic content. Just further suggests that Maya scribes readily adopted Mixteca-Puebla structural conventions as a means of visually highlighting calendrical parallels among seasonal and astronomical phenomena that followed various temporal cycles (see H. Bricker, V. Bricker, and Wulfing 1997; V. Bricker 1997a; Just 2000). Additionally, he demonstrates that what appear to be errors in these almanacs may in fact be attempts to reconcile the different notational systems used by Maya and Mixteca-Puebla scribes.

In Chapter 10 Hernández and V. Bricker consider additional evidence suggesting a link between the Madrid and Borgia group codices. For example, they relate almanacs concerned with planting on pages 24–29 of the Madrid Codex with two almanacs from the Borgia Codex (Borgia 27–28) that feature rainfall and the maize crop as their central themes. Iconographic similarities among the almanacs in question suggest the possibility of placing several of the Madrid almanacs in real time by correlating them with the Borgia group. The two manuscripts differ in their methods of timekeeping; in the Borgia Codex, planting events are related to the 365-day calendar, whereas almanacs are structured in terms of the 260-day *tzolk'in* in the Madrid.

Hernández and V. Bricker point out that one of the almanacs in the Madrid planting section, that on M. 24c–25c, is anomalous because it focuses not on agriculture but rather on the yearbearer ceremonies associated with the start of the *haab'*, as first noted by Seler (1902–1923:IV:486). This almanac, therefore, may be placed securely in the year and may have functioned to anchor adjacent almanacs concerned with planting in real time. It begins on 5 Kawak (1 Pop [Mayapán]), which can be correlated with August 14, 1468, according to the dating favored by Hernández and V. Bricker. They also suggest that this almanac can be cross-dated with the almanac on pages 26c–27c, which pictures a vernal equinox (represented by the two figures seated back-to-back) in its final frame. Other correspondences between the Madrid and Borgia codices discussed in Chapter 10 include a possible relationship between Borgia 27–28 and a series of almanacs on Madrid pages 30–33 that picture rainfall.

Hernández and V. Bricker also consider the Madrid New Year's pages (M. 34–37), which contain a number of *haab'* dates integrated into the iconography of all four pages. Various dates are represented, including several references to the months of Yax and Keh (Ceh). Hernández and V. Bricker find the Keh dates especially interesting. They can be interpreted as referring to vernal equinoxes in four consecutive years (1485–1488), thereby providing an explanation for the planting iconography that occurs adjacent to these dates on each of the yearbearer pages.[15] This interpretation implies that the yearbearer pages highlight events that take place at various times throughout the year and not just at the start of the *haab'*. These activities, which are represented in the pictures, are placed within the year by *tzolk'in* coefficients and *haab'* dates. The scribes who painted pages 27–28 and 49–52 of the Borgia Codex relied on a combination of year and *tonalpohualli* (260-day) dates to fulfill the same function.

These Borgia almanacs form the subject of Chapter 11. Following an examination of their calendrical structure, Hernández demonstrates that the three almanacs were used together to schedule New Year's events and planting activities for a period of years in the 52-year Calendar Round. She proposes, on the basis of this model, that all three almanacs date to the second half of the fifteenth century and notes that the almanac on pages 49–52 has a number of interesting correspondences with the Madrid yearbearer almanac. They both contain dates in the 365-day as well as the 260-day calendar and share an emphasis on imagery that interrelates important events from the agricultural year, including the beginning of the rainy season, planting, and New Year's rituals.

In light of the suggested similarities, Hernández and V. Bricker date the agricultural almanacs in both codices to the second half of the fifteenth century and further note that preparations for planting occurred in late March and early April in central Mexico and the Maya area. The "planting" almanacs in the Borgia Codex refer, according to Hernández, to different years in the 52-year Calendar Round. Likewise, in a model developed to explain why the Madrid Codex has so many nearly identical planting almanacs, V. Bricker (1998) proposed that each of the almanacs referred to a different year within the Calendar Round cycle. In this respect, the agricultural almanacs from the two manuscript traditions may be seen to have had the same general purpose.

The correspondences discussed by Just and Hernández and V. Bricker in Chapters 9–11 suggest that the Madrid scribes were familiar with and/or had access to the Borgia Codex or another manuscript from the same tradition. Only by positing a scenario such as this is it possible to explain the large number of structural and calendrical similarities between the Madrid and the Borgia group codices. Almanacs were not copied verbatim; rather, the Madrid scribes appear to have translated the information presented in the Borgia manuscripts into a Maya format. For example, rather than representing rainfall and planting data in the compact form preferred by the central Mexicans, the Maya scribes reconfigured this information and presented it in the two dozen or so almanacs in the Madrid Codex concerned with planting and rain. Other atypical features seen in the iconography, hieroglyphic texts, and the structure of certain almanacs in the Madrid manuscript can also be attributed to the work of scribes familiar with divinatory manuscripts and traditions from central Mexico.

The identification of calendrical notations in three almanacs in the Borgia Codex referring to named years in the Calendar Round suggests that the scribes who painted the Borgia screenfold, in common with the authors of the Madrid Codex, embedded several calendrical cycles within the almanacs contained in this manuscript. By documenting how this was accomplished, these studies broaden our understanding of the use and function of Maya and central Mexican divinatory almanacs and provide us with additional insights about the cosmology and rituals of the cultures that produced them. Studying both the similarities and the distinctions of the two systems offers researchers a new vantage point to examine Maya–central Mexican interactions during the immediate pre-contact period.

A Comparative Perspective

The new approaches explored in the present work are the result of two developments. First, our effort has been interdisciplinary. Collectively, the papers bring together a traditionally trained historian, two art historians, three archaeologists, two anthropologists, and an astronomer. A significant number among these participants can rightly call themselves "epigraphers." Second, the convening and reconvening of conferences on the same topic, with the papers revised in between, resulted in more considered, in-depth criticism among the participants, who were able to develop a more thorough understanding of one another's work. Some consideration of matters pertaining to the Madrid Codex had been ongoing at Tulane University since 1987, when Victoria Bricker offered the first of three graduate seminars on that text and later coedited, with Vail, a volume of papers presented in the first of the seminars.[16] In effect then, the present text is the culmination of more than fifteen years of interdisciplinary group activity. Our insistence on inviting a nonparticipant to provide in the concluding chapter an appraisal of the context of the present work within the general field of Mesoamerican studies and a brief appraisal of broader anthropological questions and problems engaged in this work, it is hoped, will offer further access to the material, generally thought to require considerable effort to digest, to the wider community of scholars. The introductory and concluding chapters serve as bookends to the more substantive material within. We hope the general reader who begins with these chapters will discover themes relevant to his or her particular sphere of inquiry. In addition, as editors, we have made every effort to make the text readable to students of the allied disciplines that converge on the study of Mesoamerican codices.

NOTES

1. The *k'atun* was equal to 20 "years" (*tuns*) of 360 days each. The Maya also measured time in terms of a 365-day solar year, the *haab'*.

2. It is not correct, as Vail has previously reported (see, e.g., Vail 1996:71), that the Museo Arqueológico in Madrid became the Museo de América. Rather, the Museo de América was created in 1941 to house artifacts from the Museo Arqueológico's American collections.

3. Like the Madrid Codex, these two manuscripts are named for the cities where they are currently housed.

4. The Long Count is based on a zero date of August 11 or 13, 3114 B.C. (two correlations for converting Maya to Western dates and vice versa are favored by Mayanists, which differ by only two days). Time is measured in terms of days, or *k'ins*; 20-day periods known as *winals*; periods of 18 *winals* (*tuns*); periods of 20 *tuns* (*k'atuns*); and periods of 20 *k'atuns* (*b'ak'tuns*). The 260-day calendar used by the Maya is referred to as the *tzolk'in.* It consists of 20 named days, each paired with a number ranging from 1 to 13, as discussed in detail in Chapter 5.

5. We use the term *instrument* as a means of referring to both almanacs and tables.

6. Andrews, Andrews, and Robles C. (2003:153) argue persuasively that Chichén Itzá must now be seen as a Late/Terminal Classic Maya capital rather than dating to the Early Postclassic period as previously assumed.

7. Martyr was a historian who examined the shipment once it reached Valladolid, Spain. Other spellings of his name include Pedro (Peter) Mártir d'Angleria (see Chapter 3).

8. This art style, named for the region where it appears to have originated, spread throughout much of Mesoamerica after A.D. 1300. For a detailed discussion of the Mixteca-Puebla/International style, see Nicholson and Quiñones Keber 1994 and Chapters 23 and 24 of Smith and Berdan 2003.

9. But see Thompson (1975), Baudez (2002), and Milbrath (2002), who consider the codex a forgery.

10. Love's dates for the Paris Codex are based on a correlation with Mayapán Stela 1, which Proskouriakoff (1962:135) dated to A.D. 1441. Schele and Mathews (1998:367, n. 31) relate the 10 Ahaw date on the monument, which is interpreted as a *k'atun* ending, to an earlier cycle. They suggest a date of A.D. 1185, which is followed by Milbrath and Peraza Lope (2003:39). If this dating proves correct, it suggests that the Paris *k'atun* pages could record much earlier dates than Love (1994) proposed.

11. Villacorta C. and Villacorta (1976:176) also suggested the possibility of a Tayasal origin for the Madrid Codex.

12. After the chapters relating to the provenience and dating of the Madrid Codex were completed, several of the contributors to the volume (John Chuchiak, Christine Hernández, and Gabrielle Vail) visited the Museo de América in Madrid, where they had an opportunity to view the Madrid Codex. Their observations of page 56 confirm an earlier statement by Ferdinand Anders (1967:37–38) suggesting that the paper with European writing was on top of the bark paper composing the codex. These observations, therefore, further support the arguments presented by H. Bricker in Chapter 2.

13. A paleographic analysis of the Madrid texts (Lacadena 2000) suggests that the codex was painted by nine separate scribes. Because it has a number of almanacs that have parallels in the Dresden Codex (see Chapter 6), we believe much of the content is not unique to the manuscript and may have been copied from one or more earlier codices. Evidence internal to the manuscript has been interpreted as indicating that, like the Dresden Codex, astronomical events from various time periods (ranging from the tenth to the fifteenth centuries) were recorded by the scribes responsible for painting the Madrid Codex.

14. Distance numbers are the black numerals that appear in the almanacs alongside the red, which constitute coefficients of *tzolk'in* day names (see discussion in Chapter 5).

15. In this sense, the yearbearer almanac appears to integrate the functions of the various almanacs found in the previous section of the codex (see discussion in preceding paragraph).

16. The third seminar was cotaught with Elizabeth Boone and involved an examination of divinatory codices from the Maya area and central Mexico.

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