Summary

THE MESOAMERICAN CODEX RE-ENTANGLED

Production, use and re-use of precolonial documents

This work is an attempt to piece together the cultural biography of the precolonial Mesoamerican codices. It will be shown that modern technology is capable of elucidating even the earliest episodes of this biography. The less than twenty manuscripts that still exist today are all that remains of the Mesoamerican book-making tradition. Past studies of these pictographic and hieroglyphic manuscripts have focussed mostly on their content. The lack of a focus on their physical characteristics has meant that not enough is known about the production, use and re-use of these books.

As with any object, the biography of the codices begins with the creation process. Much about this process is unclear, as its study is made difficult by a number of factors. The first of these factors is the understandably protective policy of the institutes that have these books in their care. Any investigation of the originals has to be done in a fully non-invasive manner. The methods currently available for non-invasive investigation of materials all use spectral analysis at different wavelengths. These methods are able to identify inorganic materials such as mineral pigments, but have limited applicability to organic materials. Earlier studies have shown that these codices are made on strips of either leather or paper, which was folded like an accordion to make pages and then covered with a chalk or gypsum gesso. On this bright white surface the scribes painted their figures using mostly organic dye-based paints. What the source of these dyes was is often impossible to ascertain using the non-invasive methods. Next to these modern investigations, there is however also a number of early colonial Spanish documents that provide information on the materials that were used by precolonial Mesoamerican peoples to make colours. These two sources of information provide a list of possible ingredients for the making of a codex. Within the context of this study experiments have been performed with the ingredients on this list to: better understand how to work with this material; what previously unidentified secondary materials may need to be included; and also what techniques, skills and tools are needed to successfully make a full scale codex. During this reconstruction process it becomes clear that these books are the result of intensive interaction between many people. First of all, some of the materials identified in these books come from sources with a wide geographical spread. The wide range of skills needed to extract the resources and make all the components for each codex furthermore suggests a complex interaction between different craft specialists.

When an object is finished, it enters into a new phase of its biography: a period of actual use. There is very little securely known about the use of these books, though it is clear that these books were sacred texts rather than everyday objects. Some texts contain information that can be considered more historical in nature, though these books were also not objects for simple everyday use. A basic distinction that can be made is private versus communal use of a text. This distinction is important when considering the location of use, as well as all the other objects and people involved in its use.

When the remaining codices are studied closely, it becomes clear that these books are fragile. Danger comes from fire, water, light and simple handling. Thus throughout their use they are in constant danger of deterioration and will eventually need to be either repaired, or disposed of in a proper manner. From Spanish descriptions as well as some very rare archaeological finds it can be seen that one way of disposing of an old codex was by putting it in a

burial, either in a cave or in the ground. Both of these leave very little archaeological remains. This helps explain why so few codices exist today.

The second big reason for the disappearance of entire libraries is to be found in the encounter between the Mesoamerican and the European worldviews. In Europe centuries of war against internal and external "Others" had associated non-Christians with the realm of evil. In the European imagination there was a whole realm of evil, subjected to the devil, where demons were worshipped. In European art devils and demons were depicted as hybrid creatures, exhibiting both human and animal characteristics. In the Mesoamerican writing traditions, humans are often depicted with animal features in their dress. This was originally meant to be related to the name of the character, but was reinterpreted by Europeans to show that these were evil books used for demon worship. As a result the Europeans destroyed them. The codex Iya Nacuaa (Colombino-Becker) shows an indigenous reaction to the threat of destruction levelled at the Mesoamerican writing systems as a result of this imaginary demonology. This document is one of the most damaged documents, but the damage is intentional and can paradoxically be seen to be directed towards a goal of preserving the document.

Almost all books that have survived the colonial period did so within the walls of European institutions. For many of these books it is not well known how they got there, or where they came from. For some it was even forgotten that they came from the Americas. In these institutes the books lost their meaning and the workings of the writings system were forgotten. It was only with their reproduction that they could be studied and started to regain some of their meaning. The strategies of reproduction can be considered as a new chapter in the cultural biography of these codices. The different ways of reproduction transformed the objects in fundamental ways. Inaccurate reproduction is one obvious transformation, but even photographic reproduction, with its two-dimensionality, changes the codex. A second aspect of transformation is the creation of access to these books through reproduction. Whom they are reproduced for is as important as how they are reproduced. Reproduction of these books has given more access to scholars, but has due to the costs of many of the reproductions had a limited impact on the general public. As with any rare and thus valuable object, these codices have attracted the attention of forgers, which again transforms the meaning of these objects. Modern digital technology is on the rise as one of the ways of creating access to cultural heritage, though it has not yet been applied extensively on these manuscripts. The new possibilities that these techniques offer, as well as the pitfalls that need to be avoided, are important aspects to consider for the future of these books.

Modern technology has been the main tool for the investigation of the earliest phase of one of the Mesoamerican codices. During the 1950s it was discovered that one of the codices had lived a life before the use of the known text: the Codex Añute (Selden) is a palimpsest. Hidden underneath the gesso layer, and older layer of images can be found. When it was first discovered, technology had not advanced far enough to allow the investigation of these images without removing the gesso. Within the project here presented researchers from Leiden University, Delft University of Technology, and the Bodleian Libraries of the University of Oxford, have recently teamed up to recover these images in a non-invasive manner. A whole range of techniques was applied to obtain as much information as possible on the images that were already exposed – due to natural wear and the invasive investigation of the 1950s - as well as previously invisible images on pages still completely covered with gesso. This opened up a whole series of new questions which may now be asked of this object: why was it reused? Was this normal? What can the hidden text tell us about Mesoamerican history?

All these new questions indicate that the cultural biographies of these manuscripts are not yet finished. One possible future chapter may be to use these books to reconnect present-day Mexican indigenous peoples with their cultural heritage. One medium for this may be the internet. The final part of this work contains a brief discussion of the possibilities and the pitfalls that this would bring.

Introduction

Less than twenty books remain of the entire bibliographic tradition of precolonial Mesoamerica and, with that, of the entire American continent. All of these manuscripts, generally called codices, are screenfold books, meaning they are made on long strips of material, folded like an accordion into pages. After the conquest of Mesoamerica by the Spanish conquerors, virtually all remaining codices were transported to Europe where they eventually became part of the collections of museums and libraries. As isolated oddities in this European context, their meaning was quickly forgotten. However, in the time since multiple generations of researchers have focused on reinterpreting these books, which has led to the current situation where the content of these texts is relatively well understood. Because they are such rich sources of information, these books are usually approached as sources for the interpretation of precolonial culture. While this is a valuable pursuit in-itself and one that has certainly yielded a wealth of information, it often skips over the fact that these books were not made to inform present day Western scholars. These books were meant to be useful material objects that played an active role in society. This work is an attempt at reconstructing the cultural biography of these objects (Gosden & Marshall, 1999; see also Kopytoff, 1986) following them from production, original use, re-use, up to eventual discard and present day (re-)interpretation.

The remaining precolonial codices are not all the same. There are three Maya codices which were made in the Yucatan peninsula, and are written with hieroglyphs. The rest of these books are made using a pictographic script. Only for the five remaining Mixtec codices can it be determined exactly where they were made. This is due to their content, as these books recount the history of identifiable towns in the Mixtec area in present day state of Oaxaca (see Boone, 2000; B.E. Byland & Pohl, 1994; Jansen & Pérez Jiménez, 2011; Kowalewski et al., 2009). The rest of the pictographic codices cannot be precisely sourced as they do not contain clear markers of origin, although their style and content suggest they were made somewhere in the central area of what is today Mexico. They are filled with information about religion, the calendar, and also contain mantic or divinatory texts (see Anders, Jansen, & Reyes García, 1993a, 1993b; Boone, 2013). This group of codices is often called the Borgia group, after the old name of one of the most iconic examples of this group. The content of the Maya codices is in many respects similar to these religious pictographic texts, with the addition of many tables containing astronomical information (Grube & Bürger, 2012; Vail & Aveni, 2004). Despite the differences, there are two reasons why all the remaining codices are included in this research. Both of these reasons are related to the fact that these codices represent only a small fraction of the total corpus that must have existed. Because of this it would also be unwise to exclude a group of documents because it deviates, either in content or in composition, from the majority of the corpus: the corpus is simply too small to justify treating any group of documents as real outliers. This does mean, however, that care must be taken not to over-generalise the information gained from the codices.

It was decided to include in this research only the precolonial documents. This is because the corpus of colonial document is too large and because the Europeans introduced their own material culture and traditions which were incorporated in the writing process (see Wolf, Connors, & Waldman, 2011). Both these factors would greatly increase the complexity of this research. The exception to this is the inclusion of the codex Añute (Selden), which is technically colonial, as it was made between 1556 and 1560 A.D. (Jansen & Pérez Jiménez, 2007b, p. 31). It is, however, completely precolonial in style, content, and, as will be shown in chapter 1, material composition. Throughout this work, the names used for these codices are the ones given to them by Jansen and Pérez Jiménez (2004). They decided to rename the Mixtec codices and those of the Borgia group so that their names better reflect their Mesoamerican origin. For indigenous peoples today, these names are more recognisable than their counterpart European names. Since the old names are still in use in much scholarly literature, in some cases the old names are

Manuscript name	Alternative name[1]	Currently held at
Mixtec group		
Codex Bodley	Codex Ñuu Tnoo-Ndisi Nuu	Bodleian Library, Oxford
Codex Selden	Codex Añute	Bodleian Library, Oxford
Codex Becker I	Codex Iya Nacuaa[2]	Museum fur Völkerkunde, Vienna
Codex Colombino	Codex Iya Nacuaa	MNAH, Mexico City
Codex Nuttall	Codex Tonindeye	British Museum, London
C. Vindobonensis Mexicanus 1	Codex Yuta Tnoho	ONB, Vienna
Maya Group		
Codex Dresden		SLUB, Dresden
Paris Codex		BNF, Paris
Madrid Codex		Museo de América, Madrid
Grolier Codex[3]		Mexico City
Borgia-Group		
Codex Borgia	Codex Yoalli Ehecatl	BAV, Vatican
Codex Vaticanus B	Codex Tonalpouhqui	BAV, Vatican
Codex Cospi	Codex Tlamanalli	Biblioteca Universitaria, Bologna
Codex Fejérvàry-Mayer	Codex Tezcatlipoca	World Museum, Liverpool
Codex Laud	Codex Mictlan	Bodleian Library, Oxford
Important Fragments		
Codex Yauhtepec		San Bartolo Yauhtepec
Codex Porfirio Díaz	Codex Yada	BNA, Mexico D.F.
Nochixtlan-Fragment[4]	Nuu Naa Fragment	Museum für Völkerkunde in Hamburg

Table 1. Names and locations of the remaining pre-colonial Mesoamerican manuscripts

1.The alternative names reproduced in this table were originally proposed by Jansen and Pérez Jiménez (2004) (see also Jansen & Pérez Jiménez, 2011, pp. 42-95) to replace the colonial nomenclature used in the studies of these books. In this work, the alternative, more dignified names will be used. However since scientific literature is permeated with these names, on occasion the older names will be given in brackets.
2.The codices Becker I and Colombino are parts of the same document, which is reflected in the alternative name.
3.The Grolier Codex is thought by many to be a fake. As such, it is not taken up in the discussion of the materials. It does feature in chapter 5 where its possibly deceptive nature is discussed.
4.This fragment is the beginning of the Codex Cochi (see Jansen, 1994).

also given in brackets. Table 1 shows both of these names, as well as the institutes that currently have these books as a part of their collections.

Although the term object is used in this work to refer to the codices, it must be understood that these books were not always passive, but that they had a definite effect in society. This is not because of some "magical mind dust" as Ingold (2007, p. 11) calls the agency that is often attributed to objects in materiality theory. It can be much better explained by using the definition of materiality given by Rebay-Salisbury, Brysbaert, and Foxhall (2014, p. 1) as "the properties, affordances, functions and styles of different materials". In other words, what gives these books agency is that they enable humans to do things with them, which they could not do in the same way without them. This goes beyond simplistic structural functionalism, as these books clearly contain complex layers of symbolism. Interpretation of this symbolism may change the affordances and perceived functions of the object. Hodder (2012) distinguishes two types of relations between objects and between objects and humans. One relation is the enabling affordance that is also incorporated in the definition of materiality given above. The second relation is one of dependence; i.e. all the "things" that are needed to construct and maintain an object. These "things" can be material – in the sense of raw materials, tools, and the artists' hands, immaterial – in the sense of knowledge, skill, and desire, or both material and immaterial. The total set of affordances and dependencies creates a web of entanglement that each object is caught up in.

To give all these aspects a place, the cultural biographical approach as proposed by Gosden and Marshall (1999) is ideal. With this approach, the codices can be studied in such a way that they remain the centre of attention without losing the social context in which they appear. This context is crucial to understand the changes that occur in the set of affordances and dependencies of these codices. There are, for example, massive changes in context that occur with the coming of the Spanish Conquerors, which severely transform the meaning of these books. The changes that occur in the book-making tradition in the Americas as a whole are obvious, with the introduction of alphabetic writing and the use of European materials such as paper, though more subtle changes can be seen in the already existing precolonial documents as well.

What makes the biographical approach so applicable to the codices is the fact that it allows for the consideration of the whole life of an object. In this way, the biographical approach includes the chaîne opératoire and use-life analysis approaches, and may even go beyond these approaches to account for present day interactions with these objects as well as considering future developments (Joy, 2009, p. 542). Especially for such significant objects as these codices, which remain important artefacts or even tools for present day scientific and social issues, the biography continues to aggregate meaning. The biographical approach is, however, not without its issues. On a basic level the objects under scrutiny in this work, by their very nature, are not prehistoric. At the same time, some problems plaguing prehistoric artefact biographies (see Joyce et al., 2004, p. 543) also need to be addressed for this study. As with prehistoric artefacts, there is little in the way of recorded information about the life of this class of objects, let alone about the specific lives of individual codices. At the same time, as texts they are clearly objects inscribed with meaning from their very creation (Marshall, 2008, p. 64). An understanding of this inscribed meaning forms the basis for an exploration of the ways in which they can acquire more meaning, particularly, as Gosden and Marshall (1999, p. 174) suggest, through performance.

With the approach taken in this dissertation, a first attempt is made to understand the place of the precolonial codices in society through time. Often this means transcending the analysis of the biography of individual codices and looking at idealised biographies of the entire class of object (see Jones, 2001, p. 85). In the case of the colonial encounter where Spanish views clashed with these books, all the remaining codices deviate from the ideal path, as they are the ones that escaped the idealised destruction. Luckily, here the colonial Spanish documents, as well as medieval European practice, do give contextual information which helps to reconstruct the preferred way of dealing with these books.

Each chapter of this work focusses on a specific section of the cultural biography of these codices. The first two chapters look at the dependencies of the codices in a material sense. From the cultural biographical perspective, these two chapters simultaneously analyse the very beginning as well as a very late part of the story of these books. This is because the understanding of the material composition of these books and the process by which they were made is only now being understood with the help of very modern technology. The information used in chapter 1 on material composition comes from a number of investigations involving different types of precolonial documents, both historical and religious, and from different cultural areas, which were aimed at understanding the physical and chemical composition of these books using high-tech (mostly) non-invasive investigative techniques. Because of the rarity of these books and with that the understandably protective policies of the institutes holding them, all current investigation needs to be fully non-invasive. These non-invasive technique are, however, not always capable of fully identifying the materials. Thus, secondary sources of information often needed to be consulted; in this case, a number of early colonial sources which give information about plants and other natural materials that, at least as far as their writers understood the matter, could have been used in the production of these books. Most notable amongst these secondary sources are the Historia general de las cosas de nueva España also known as the Florentine Codex by Fray Bernardino de Sahagún (1577c), the Quatro libros de la naturaleza by Dr. Francisco Hernandez (1615), and the so-called Badiano Codex or the Libellus de Medicinalibus Indorum Herbis written by Martin de la Cruz and translated into Latin by Juan Badiano (1991).

The list of identified materials can then be used to do experiments in order to understand the process of creation through replication. The results of this are incorporated in chapter 2. While the high-tech investigation allows for the recovery of the main components used in the creation of these books, the experimental replication shows the production process to be rather more complex. Experimental replication yields a fuller understanding of the materials, skills, and specialist skills needed to complete a codex. Working with the materials also helps one to explain why certain materials are chosen, and how all these materials work together to form a book. Furthermore, the full scale replicas help one to appreciate the original aesthetics of these books, before use and the passage of time took their toll. A theoretical issue needs to be raised here. If the definition of experimental archaeology, in which this process of replication can be situated, is followed (Mathieu, 2002, p. 1), then there is a difficulty with these experiments in terms of controllability and in the creation of analogies to archaeological remains. The problem here is not so much with the experimental replication itself, but rather with the ability to check the replicated object against the archaeological original, because of the restrictions placed on the research of the originals. Thus, these experiments can only show how a codex could be made using the available materials and technology, but they do not provide us with any certainty about how such documents would have to have been made. Being such complex objects, the precolonial codices also give an interesting window into the multiplicity of precolonial crafts. Many of these crafts did not leave much in the way of material remains in archaeology and are thus very difficult to study. The codices are one of the few examples of objects that have survived which are the result of this complex interaction of different crafts.

The affordances of these books – i.e. their possible uses – are central to the discussion in chapters 3 and 4. The first of these chapters focusses on the original intended context of use. Because none of the codices is encountered in a primary context, this use has to be completely reconstructed, based upon the types of content (the inscribed meaning) of these texts. As will be shown, none of these books were used in isolation, so their use invariably implies further entanglement with objects and people. Because of the relative fragility of these books, continued use also implies decay. Close observation of the remaining codices, combined with some very fragmented archaeological and historical data, allows for an understanding of the strategies of repair, reuse, and also disposal of these books. Chapter 3 can thus be considered as a discussion of the complete use-life

of a codex as it was intended by their creators, thus finishing the object's intended chaîne opératoire.

Chapter 4 turns the tables and is an attempt to understand the affordances of these codices within a completely new set of entanglements caused by Spanish colonialism. As Gosden and Marshall (1999, p. 176) already note, colonial encounters are moments in cultural biographies where sharp breaks may occur in the meaning of objects. In the case of the precolonial codices, it may be more appropriate to consider this as a reinterpretation of the books within the already existing cultural framework with which the Spaniards entered Mesoamerica. This is the world of an essentially Medieval Spain that, through its own turbulent socio-political and religious past, created a whole new set of conditions within which the codices had a set of specific negative affordances. It also introduced a new set of "Things" (as defined in Hodder, 2012, pp. 7-9) which could connect to and disrupt part of the old set of relations, potentially unsettling the dependences that the creation and maintenance of the codices had relied upon. One codex, the Codex Iya Nacuaa, is shown to contain a strategy to deal with this new perception of precolonial writing.

Ironically, the move of the codices to Europe may have been the "salvation" of the physical objects, though for a large part of the 17th and 18th century they lay forgotten in libraries or private collections. It is not until the late 18th and early 19th century that renewed interest in these books began. Spread out as they are over multiple institutes throughout Europe, it was quickly understood that no study of these books could be attempted without proper reproduction (M. D. Coe, 1992, p. 90). These reproductions are central to chapter 5. They can be seen as creating new entanglements between these codices and people, affording study and extensive reinterpretation. At the same time, the technologies used remove the texts ever further from the object itself. Today it is possible to study the contents of a Mesoamerican codex without ever laying eyes on one. New technology, such as the internet, creates new possibilities for connecting with these books, though not all of these new relations are without problems. Two examples of modern re-creations, fake codices which came to light during this investigation, exemplify the issues that such limitless access may bring.

The final chapter of this dissertation reports on the recent research done by the author and my colleague Tim Zaman of the Technical University of Delft on one specific codex held at the Bodleian Library: the codex Añute (Selden 3135 A.2). The Añute document is unique as it is a palimpsest, having been painted over an older manuscript. During the period of this project, Zaman developed a new technique with the purpose of looking through this document. This and other techniques applied to the document are discussed and the results are presented. In the final chapter the need for understanding the physical object is made clear, as the recovery of the palimpsest is severely limited by the material composition of the book. It also shows a new type of relation that firmly binds these codices with the most modern of techniques. The previously unknown codex which with this research is being revealed only becomes visible in the virtual world.

It is clear that these books are continuing to add to their biography, which becomes increasingly entangled with modern technology. A different type of connection that has thus far been explored only seldom is the connection of these books with present-day indigenous peoples. Although this connection is in many cases heavily distorted if not lost completely, perhaps modern technology can in the future reconnect these books with the descendants of their creators. In the conclusion these and other possible future connections that these books can engage in are reflected upon.