CLASSIFICATION OF FINISHING TOOLS IN GREEK BOOKBINDING: ESTABLISHING LINKS FROM THE LIBRARY OF ST CATHERINE'S MONASTERY, SINAI, EGYPT.

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VOLUME I:
TEXT

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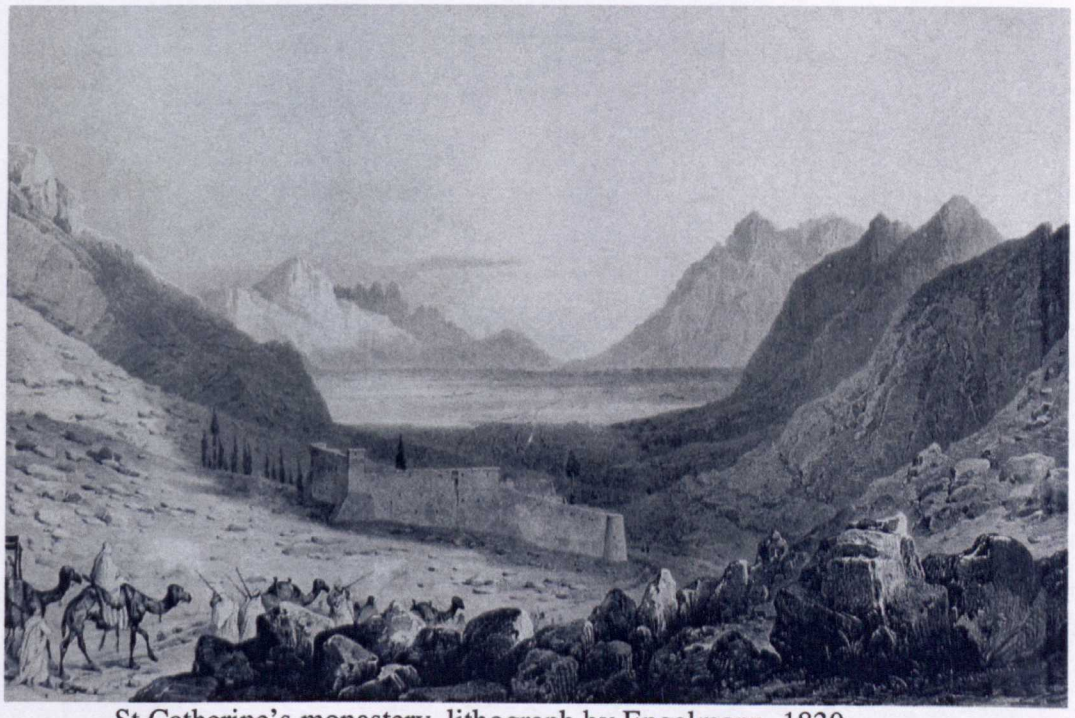

St Catherine's monastery, lithograph by Engelmann, 1830


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ABSTRACT

The thesis examines the decoration of Greek bookbinding, through the study of the leather-covered bindings from the monastery of Saint Catherine in Sinai, Egypt.

The manuscript collection is remarkable for the variety of binding styles that represent mainly Greek but also other bookbinding traditions, including Georgian, Syrian and Eastern European. The examination of the decorative motifs tooled on the leather-covered bindings aims to identify the style and characteristics of bookbinding at the monastery. Moreover, links between and evidence for specific bindings and the manuscripts they contain are established by grouping them and relating them to specific binders and bookbinding workshops. The workshops of the monastery are examined in parallel with groups of bindings that were imported into the monastery. The extent to which the trade in books and the circulation of binding techniques between the monastery and the west was a reflection of the relations of the monastery with its dependencies is also explored.

Rubbings of the approximately 5500 tool impressions on the 1195 decorated bindings have provided the core research material. They have been identified, classified and organized into a descriptive electronic database. Imaging techniques have been developed to compare the scanned impressions, which permitted the identification of impressions of the same finishing tools. Based on the identity of their decorative tools and on the process of comparison of their structural features, a number of the bindings have been ascribed to a total of 70 specific workshops, whose dates and origins are explored. 16 of these workshops - nine from the monastery of St Catherine and seven from elsewhere, which produced bindings imported to the monastery, are discussed analytically. In addition to that, 40 original bookbinding finishing tools were discovered at the monastery during this research, which have provided invaluable material for our understanding of the tooling methods and particularities of decorated book covers at the monastery.

The largest corpus of finishing tools used on Greek bindings to date has been compiled to provide a reference tool which will aid future research on Greek bookbinding.

PREFACE AND ACKNOWLEDGMENTS

This thesis was initiated in October 2005, with a scholarship from the Arts and Humanities Research Council, whose support was fundamental for the completion of the thesis. The research was submitted at Camberwell College of Arts at the University of the Arts London.

This research can be considered the result of a continuous and ongoing interest, both of the author and the several contributors involved, in the Holy Monastery of Saint Catherine in Sinai Egypt and the cultural wealth encompassed in its ancient and unique library. In 1996 the Saint Catherine Foundation was established under the patronage of HRH The Prince of Wales with the aim of supporting the fourth-century monastery in many of its functional needs and to assist in the preservation of its treasures and its library. In 1998, with the foundation's support, an unparalleled project begun to record, investigate and preserve the library of the monastery and provide the best circumstances for the survival of this unique collection of manuscripts, early printed books and archives. Professor Nicholas Pickwoad was from the beginning the supervisor of this project. His deep knowledge of bookbinding, his foresight and appreciation of the opportunity to care for a collection of the magnitude of St Catherine's and the benefits entailed for the field of book archaeology led to an unparalleled survey of the collection. For eight years (2001-2008) teams of conservators, including the author, spent numerous hours, recording analytically each of the 3,307 manuscripts of the collection and 1,000 early printed books, in order to assess their condition. But this was also a unique opportunity to examine and learn more about the structures of the ancient bindings. The knowledge that the surveyors gained during these years was invaluable.

The material that was collected from this survey was made available to me in order to begin this thesis. My gratitude is deep for the trust and support that Prof. Nicholas Pickwoad showed to me. The more so, because as my supervisor for this thesis he has been patient, considerate and most generous with his useful advice and comments and with the time he has spent correcting my drafts for which I cannot thank him enough.

I am heartily thankful to my second supervisor, Prof. Mirjam Foot for her continuous support and open-handed advice and for her patience with reading and correcting my

imperfect English. Dr Athanasios Velios has been my third supervisor and a good friend, to whom I owe my deepest thanks for his help with my survey database and his continuous support, particularly during the early stages of the thesis when this task appeared overwhelming.

I am greatly indebted to the Fathers of the monastery of Saint Catherine, the Archbishop Damianos and the former librarian Father Symeon for granting me permission to study the collection and to pursue this thesis. To Father Justin, the current librarian I owe my deepest gratitude for his enormous help during my visits to the library; he went out of his way to make my work easier, as well as providing me with photographs and information when I was off-site. His enthusiasm and support for my project gave me great motivation and encouragement. Father Daniel and Father Porfyrios, the former and current treasure-keepers of the monastery deserve special thanks for not only have they been so hospitable and helpful during my visits to the monastery but I also owe to them the discovery of the finishing tools in July 2007.

I would also like to thank Father Gregory for his help with the transcription of several inscriptions in Arabic and Syriac, as well as Prof. Pat Easterling and Mr. Agamemnon Tselikas for their assistance with the transcription and /or translation of a number of notes in Greek. A number of people have assisted me with their advice and constructive discussions. I would like to thank deeply Dr George Boudalis who has repeatedly and enthusiastically advised me and whose outstanding work has been a guide and a motivation throughout my thesis. Mrs Elly Cockx-Indestege has been very supportive with her advice on the classification of finishing tools and her experience was most valued. I would also like to show my gratitude to Mr Konstantinos Houlis for our constructive discussions which helped me during the beginning of this thesis, to Mr Andrew Honey for directing me to many interesting bindings from the Oxford Bodleian Library, to Mr Roy Petit and Mr Brian Skilton of P&S Engraving for sharing their invaluable expertise in finishing tool making and to Mr Patrick Storme and Dr Marlia Mango for their help with the identification of metalworking features and techniques of the finishing tool finds.

My deep thanks also to my dear friends Marco Di Bella, John Mumford, Flavio Marzo, Kyriakos Theophanous, Ilse Van der Bogaert, Stella Ditschkowski and to my sister Maria Sarri who have all helped in various yet invaluable ways and engaged with me in productive discussions. To my parents my warmest gratitude for their endless support and encouragements when it was most required.

Finally, I owe the most deep and loving thanks of all to my wife Ioanna, who has endured with patience and understanding the four years of the thesis and has not ceased to support me.

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NOTE TO THE READER

The Greek binding is a distinct entity within bookbinding styles. It derives from a book culture that developed during the period of the Byzantine Empire and in many areas with large Greek populations it survived after the fall of Constantinople and of the empire in 1453. This style of bookbinding is not confined strictly to the geographic borders of the Byzantine Empire. Instead, the term "Greek binding" in this thesis is used to characterize bindings on the basis of their structural features, which include the unsupported link-stitch sewing, the smooth and rounded spine, the wooden boards occasionally with edge grooves and the endbands that extend over the edges of the boards and are sewn into them. This structure has also often been referred to as "Greek-style" or "Byzantine", yet both terms seem to be less accurate in describing what the Greek binding represents, since "Greek-style" could be interpreted as a binding that is made to look like a Greek structure, yet it is not a genuinely Greek binding, such as the *alla Greca* bindings made in Italy. The term "Byzantine binding" is often confused and misinterpreted as the binding that was produced during the time of the Byzantine Empire. "Post-Byzantine binding" is another term that has been used to refer to bindings made after the fall of the Byzantine empire, yet for reason of economy the term "Greek binding" was found to encompass all the chronological, geographical and structural characteristics of this type of bookbinding.

A substantial part of this thesis is involved with the comparison of rubbings. During this process, the words "similar" and "identical" are often used in this thesis to describe the relation between two or more motifs. It is worth stressing that "similar" is used to describe two motifs that have decorative similarities in the representation of their design but by no means do they describe impressions that derive from the same finishing tool. Two impressions are described as "identical" only when it is confirmed that the same finishing tool produced both of them.

The largest part of the thesis deals with recognising consistent patterns of bookbinding activity that are identified on two or more bindings and which may be attributed to one bookbinding "workshop". By "workshop" I mean any structure of a bindery, either organised where a group of professional binders could have been working together, or

even by individual binding activity executed by someone who could have been binding books as a *diakonema* – an occupation of obedience - in his cell, with the minimum of equipment and materials. It is also the case that a workshop could be an establishment or personal activity which could involve the work of one person passed on to another after a certain number of years, along with the decorative tools and the knowledge of bookbinding. There are several cases recorded at the monastery which imply such a phenomenon, and although they involve the work of different binders at different times, they demonstrate a continuation of a tradition, style and bookbinding habits which is treated as one.

The lack of a complete and comprehensive catalogue of all the manuscripts at the Saint Catherine's library was a great drawback for this research, particularly because of the lack of dates for many of the manuscripts examined and the lack of analytical palaeographical examination of the numerous inscriptions that were found in them. Many transcriptions and translations of notes into English are included in this thesis; these have been deciphered in their majority by the author, unless otherwise stated, while there are several notes that the experienced palaeographers Prof. Pat Easterling from Cambridge University and Mr Agamemnon Tselikas of the Historical and Palaeographical Institute of the National Bank of Greece Cultural Foundation have helped me with.

The thesis is divided into three volumes. Volume I includes the main body of text of the thesis, which describes the finishing tools that were found at the monastery in July 2007 in one of my visits to the monastery during the course of this research and also discusses fifteen identified bookbinding workshops. The latter are divided into those that were situated at or around the monastery and those that produced groups of bindings that were imported into the monastery. Within each of these two entities, the workshops are arranged in chronological order.

Volume II constitutes the corpus of all the rubbings made from the finishing tool impressions that have been identified from the collection of manuscripts of the St Catherine's library. The identification number of each of the tools is an accession number and this is used to refer to each specific tool throughout the thesis. An approximate date of the use of each tool is given where possible, as well as the provenance of the tool, based on the provenance of the binding/s it was used to decorate.

Volume III includes the Appendices to the thesis, which include tables of data for all of the 70 groups of bindings that have been identified within the collection, the lists of decorative patterns, the description of the survey database and the bibliography for this thesis.

Some abbreviations that are used throughout the thesis concern the shelfmarks of the manuscripts of the library. Until now there is no agreed and standard naming system for the manuscripts of the St Catherine's library in the published catalogues and other references. I have preferred to adopt the system used by Boudalis (2004), for reasons of consistency and for economy in typing. Therefore Greek manuscripts have the prefix **S.** followed by the manuscript number that is attributed by the monastery. Arabic manuscripts have prefix **S.A.** , Slavonic ones have **S.Slav.** , Syriac ones have **S.Syr** and Ethiopic ones have **S.Eth.**

Finally, it should be stressed that the rubbings in Volume I and Volume II are reproduced in their actual size (100% in scale), unless otherwise stated, the prints are therefore adequate for direct comparison. This has been the main reason why dimensions are not given next to the rubbings, since the reader can take accurate measurements from the actual rubbings.

PART 1

1.1 Introduction

1.1.1 The Saint Catherine's Library Conservation Project

In October 2001 a pioneering project under the title *the S .Catherine's Library Conservation Project* was initiated with the support of the Saint Catherine Foundation, to survey the bound manuscripts of the library of the monastery of Saint Catherine on Mount Sinai. As Prof. Pickwoad, the director of the project could foresee, this was a crucial first step towards a plan for the preservation of the library, which included the re-housing of the collection in a renovated library, the digitization of the collection and the care of damaged manuscripts. It was a unique opportunity to study a collection of bindings which had never been examined before and which preserved some thousands of unique binding structures that manifest the wealth and the importance of this ancient monastic library.

In the following five years professional conservators from around the world were invited to participate in the survey of 3,307 manuscripts and 1,000 printed books up to the year 1600. The survey resulted in the accumulation of a large quantity of binding information from the collection. The surveyors were able to identify numerous examples of Greek bookbinding, Islamic structures, many original western-style bindings, others with Islamic or western influences on otherwise Greek structures, as well as examples of other bookbinding traditions of the Orthodox Eastern world[1], spanning a period of nearly 11 centuries from the eighth to the nineteenth century. It was evident that much of the history and evolution of Greek bookbinding was illustrated by this substantial sample of bindings; what is more the history of the monastic library was projected through the history of the bindings and much was to be learnt from these.

The first substantial attempt to study these bindings was made by Dr George Boudalis, a founding member of the survey team of the collection.

[1] Bookbinding traditions other than the Greek-style discussed in this thesis include Georgian, Syrian, Ethiopian and Slavonic.

His work[2] discussed nine groups of bindings from the library as well as three more from the Iviron monastery in Mount Athos, and through these he examined the evolution of Greek/ post-Byzantine bookbinding from the sixteenth to the eighteenth century. This was the first occasion in which some of the bookbinding workshops which are represented in the library and/or which functioned within its premises were identified and where information on bindings that are included in the collection was first analysed.
Following the completion of the survey of the manuscript collection it was evident that many of the binding structures encountered had to be studied further in order to understand more of the bookbinding traditions involved and to elaborate on the history of the monastic library, but it was also acknowledged that a great gap existed in terminology that was essential to describe bindings. The *"Bookbinding Glossary"* of the *Ligatus Research Centre,* Camberwell College of Arts, London was initiated with the funding of the *Arts and Humanities Research Council* as a project that attempted to resolve some of the major inconsistencies involved in bookbinding terminology and to compile a glossary in English and Greek that would help describe Greek bookbindings. This was an evolving project at the time of this research that contributed significantly to the field and to this research specifically.

1.1.2 Review of work done so far.

Research on bookbindings of Greek manuscripts is a relatively new field in the discipline of book studies, which has become a subject of serious academic work only during the last few decades. Although the texts of Greek manuscripts have been studied meticulously and much work has been conducted in the history of the Greek/ Byzantine book by palaeographers and book historians (only indicatively, Patrinelis 1961, Mioni 1977, Wilson 1980 & 2002, Hunger 1995, Galavaris 2000, Tselikas 2004), the first references dedicated to Greek bookbinding are encountered in the work of Paul Adam

[2] Boudalis, George (2004). *The evolution of a craft: Post-Byzantine bookbinding between the late fifteenth and the early eighteenth century from the libraries of the Iviron Monastery in Mount Athos/ Greece and the St Catherine's Monastery in Sinai/ Egypt,* PhD Thesis, London

(1923), who refers to them as a distinct form of binding and a presents a short study on these. Following this reference, Willoughby (1940), based on the binding of one Greek codex, traces the elements of Greek bookbinding to its origins and influences, particularly from a decorative point of view. The development and spread of Persian-style decorations from Herat, the Turkish adaptation and the possible Venetian contributions are unfolded, primarily to place the binding of the particular manuscript in relation to its contents but also to provide elements of the history of Post-Byzantine binding.

Many articles followed in the next decades, which examined the structure and the decoration of individual Greek bindings and which attempted to portray the characteristics of the Greek book (Klepikov 1961, Irigoin 1978, Canart, Hoffmann & Grosdidier de Maton 1991, Sonderkamp 1991, Houlis 1992 & 1998 & 1999, Grosdidier de Maton 1998, Mpallian 1998, Merian 1998). At the same time work was initiated by several scholars on the identification of small groups of Greek bindings, based on their decorative similarities and the first bookbinding workshops were identified. (Wittek 1953, Astruc 1982, Cataldi 1986, Gamillscheg 1981, Goff 1975, De Maton 1984, 1989 & 1991, Hoffmann 1982 & 1985, Irigoin 1962, 1978 & 1982, Prato & Sonderkamp 1985, De Marinis 1960, Harlfinger 2000). Most characteristic is the identification of a workshop related to the scriptorium of the Cretan scribe Michael Apostolis, on which several scholars worked and a number of articles have been written.

The majority of these publications are sporadic investigations of individual or small numbers of bindings which did not provide substantial numbers for in-depth analysis and statistical outcomes. Grosdidier de Maton in her doctorate thesis submitted in 1984 examined 32 Greek bindings from the Bibliothèque Nationale de France and identified an important workshop from the monastery of St Anastasia Pharmakolytria in Chalkidiki. This was the first time that a workshop's date, provenance and different phases could be established, through a basic methodology of examination of the decorative features of the bindings.

In 1988 Federici & Houlis published the first extended research on Greek bookbindings, an examination of the Greek bindings from the Vatican library which represent a substantial sample of the features encountered on Greek bindings, although these

bindings are not grouped or selected by date or provenance and therefore do not offer comprehensible outcomes for specific periods or provenances.

In 1991 an essay was published by Petherbridge on the methodology of examining the sewing of the textblocks of Greek manuscripts, an outcome of an eight-year long analytical survey of the manuscript collection of the St John Theologian Monastery in Patmos. Szirmai in 1999 published a monumental work for the field that in recent years aims to be established as the archaeology of bookbinding. His section on Byzantine bookbinding includes a summary of technical descriptions of some of the main features that he has encountered, or sourced through his extensive bibliography.

The thesis by Boudalis (2004) on the characteristics and the evolution of Greek bookbinding, is a pioneering work, both in terms of the material presented which includes a statistically valid number of bindings from defined provenances and dates, but also in terms of the methodology he has selected to examine these. With the addition of his article in 2007 on the technical description and the classification of Greek endbands, which is based on the material that he examined in the St Catherine's library and in the monastery of Iviron, Mount Athos, Boudalis has established stronger foundations for the systematic research into Greek bookbinding and to provide comprehensive guidelines for examining workshops of Greek bindings.

Research specifically on the bookbindings of the library in Saint Catherine's monastery is very limited. Boudalis's thesis is the only substantial study to have been completed so far. Weitzmann and Galavaris (1990) in their presentation of a number of illuminated manuscripts give only brief descriptions of their bindings. Kalligerou (2009) published a study of 45 bindings on Georgian manuscripts, which describes the main technical characteristics of these bindings which represent the features of Georgian bookbinding of a certain period, yet it is debatable whether these can be attributed to one bookbinding workshop or whether they are a random grouping of bindings from the same bookbinding tradition.

1.1.3 The History of the St Catherine's Monastery

The monastery of St Catherine's is situated in the Sinai peninsula in Egypt, surrounded by the granite mountains of the desert. Lying in the Wadi-ad-Dayr where Moses is

believed to have received the Ten Commandments, it has remained and survived there through fourteen centuries, becoming the world's oldest active Christian community and one of the centres of early monasticism.

From the fourth century we have references from one of the earliest pilgrims to this holy land, a Spanish noblewoman named Etheria, that a small church existed in the valley, next to the Burning Bush of the biblical texts– which is now within the walls of the Monastery. This church, according to tradition, was built by Saint Helen, the mother of the Roman-Byzantine Emperor Constantine the Great. Yet, at that time the Christian centre of the Peninsula was not located there but at Faran, an oasis near the monastery, where the bishop of Sinai resided.

The fortified monastery and the main church that survive today were built later and mark the beginning of the history of this great spiritual and cultural centre of Christianity. In the middle of the sixth century the Byzantine Empire extended to the region of Sinai. The geographical significance of Sinai, located at the conjunction of two continents and a separating line for two seas, made it one of the most important crossroads worldwide. Emperor Justinian ordered the construction of the fortification in order to create a strong centre in the holy area around the Burning Bush to protect the flourishing Christian community and the hermits of the Sinai peninsula from invasions and to establish the monastery as a strategically positioned fortress.

During the ninth century the relics of Saint Catherine were discovered on what is now called Mount St Catherine and were taken to the monastery. The legend of the young martyr brought great fame and many pilgrims to the monastery and subsequently the saint's name was given to it, which was until then dedicated to the Transfiguration of Christ. The monastery's fame expanded, particularly after the eleventh century when a monk of Sinai Symeon *Pentaglossos*[3] travelled to the west carrying with him the relics of Saint Catherine, collecting alms for the monastery. This was partly the beginning for the close relations that the monastery achieved with the western and eastern European Christian world, which often resulted in financial support for the monastery and the offer

[3] "He who speaks five languages"

of numerous luxurious gifts as a token of reverence. This fame was to endure throughout the monastery's history.

After 641A.D. the Sinai Peninsula was conquered by the Arabs and many Christian monasteries, hermitages and churches were destroyed, while the Arabs of the Peninsula converted to Islam. The survival of the monastery was often depended on the exercise of outstanding diplomatic skills in engaging with the Muslim conquerors and with the local tribesmen, with whom the monastery manages to keep good relations until today. A mosque that stands at the centre of the monastery was the old refectory that was converted in 1106, evidence of the acts of diplomacy that the monks of the monastery often had to turn to. To this end an *Ahdname* granted by the hand of the prophet Mohamed was respected by all Muslim conquerors that followed, and contributed significantly to the protection of the monastery, both from destruction and from heavy taxes imposed by the rulers.

The monastery's dependencies, the relics of Saint Catherine and the presence of Crusaders in Sinai (1099-1270) were all influential for the heightened interest of the Christian world in the monastery. The monastery often received support by the Popes, as well as benefactions and favorable taxation by Doges and rulers of Wallachia. In the early thirteenth century Pope Onorios III undertook to protect the lands of the monastery in Sinai, Syria, Crete, Cyprus, Constantinople and Palestine, that was continued by many other Popes who followed. During the occupation of Crete by the Venetians (1212-1669), the dependency of the monastery received special treatment, tax relief and political privileges as well as a ship and the right to export goods without taxation. This period corresponds with the flourishing of the Cretan dependency in Candia, which evolved into a great spiritual and cultural centre for the whole of Hellenism, particularly after the fall of Constantinople in 1453.

After the fall of Crete to Turkish occupation, the monastery developed strong links with the rulers of Wallachia and established several dependencies in the region, which for two centuries influenced and often preserved the monastery at difficult times.

The fame of the monastery and the interest it attracted from the west has not always worked to its benefit. Several scholars visited the monastery, particularly during the nineteenth century, in search of ancient manuscripts, and some of them managed to remove many treasures from the monastery. Lord William Turner was one of the first known scholars to leave the monastery with several manuscripts of ancient Greek classical works in 1815 and between 1845 and 1850 Archimandrite Uspencky, having gained the trust of the Sinai monks, removed painted icons and bound manuscripts or cut out illuminations from others to take them to St Petersburg. The most famous however is Konstantin von Tischendorf who managed to remove most of the most precious manuscript of the monastery, the fourth century Codex Sinaiticus, following a much disputed agreement with the monks to borrow the manuscript and copy it for a printed edition. Instead the manuscript was taken to be given to the Tsar of Russia were it remained until 1935, when it was acquired by the British Museum (currently the British Library).

1.1.4 The Library

The library of the monastery comprises of nearly 3,300 bound manuscripts and around 6,000 early printed books. Out of the manuscripts, 2319 are written in Greek, while there are also approximately 600 Arabic, 266 Syriac, 86 Georgian, 43 Slavonic, six Ethiopic, one Latin, one Polish and one Persian manuscript.

The history of the library runs parallel to the history of the monastery. According to tradition, upon the foundation of the monastery, Emperor Justinian sent gifts to the monastery, among which many books for its liturgical needs. The Codex Sinaiticus was allegedly one of these gifts. This manuscript, which dates from the fourth century, was the earliest surviving manuscript in the monastery and the oldest complete New Testament in Greek to survive. 12 complete leaves and several smaller fragments remain in the monastery. The greatest part of the famous manuscript is now housed at the British Library, while smaller parts survive at the University Library in Leipzig and the National Library of Russia in St Petersburg.

Several manuscripts are thought to be gifts from Emperors or Patriarchs, from a very early date, such as **S.204** (tenth century) and **S.207** (twelfth century, Digbasani, 1992, p.563). What is equally significant is that monks and abbots of the monastery have been responsible for the productions of numerous manuscripts from as early as the fourth century. *Hosios* Nilos (fourth century), *hosios* Nikon (fifth century) and monk Anastasios (sixth-seventh century) are the earliest identified scribes, who are responsible for producing some important religious texts that were originally produced at Sinai. The most important of all was undoubtedly St John of Climacus, archbishop of the monastery during the seventh century who produced one of the most influential ecclesiastical texts *"The Ladder of Paradise"*.

Evidence from surviving evidence on manuscripts at the library prove that the copying and production of manuscripts was practiced from as early as the eight century (Digbasani 1992, p.569), a practice that seems almost never to have stopped. **S.A.116** dates from 995/6 A.D. and is confirmed to have been written at the monastery as is also **S.257** written in 1101A.D. Several more manuscripts confirm the existence of copying activity, particularly after the tenth century.

Along with the numerous manuscripts produced at the monastery, reference should be made to those that were collected or commissioned and dedicated to the library by archbishops and monks of the monastery and of its dependencies. Archbishop Arsenios in the thirteenth century was a scribe and copyist himself as well as a collector of manuscripts which he donated to the monastery. Archbishop Ioasaph was also occupied significantly with the care and the gathering of manuscripts, and has left several inscriptions to remind the reader not to remove the manuscript from the monastery. He is also known to have been involved with repair work and the rebinding of a number of volumes (Boudalis 2004, p.113). Several other individual manuscripts, some of which are examined in this thesis, indicate that monks from the dependencies of the monastery would often bring books with them upon their return to the monastery in Sinai, which as this thesis discusses, may be the case for the majority of the books that arrived in the monastery during the sixteenth century.

One of the most influential figures for the library was Nikehoros Marthales, archbishop of the monastery between 1728-1747, who also served as abbot of the monastery's dependencies in Constantinople and Wallachia before that. He was a scribe and copyist himself, and wrote a number of manuscripts surviving in the library. Upon his election as archbishop, one of his preliminary tasks was to gather all the books that were until then scattered in different rooms of the monastery and particularly in the *katholikon* (the main church), into one dedicated place that he restored and which formed a proper library. At the same time he delegated the task of transferring and listing all the manuscripts to monk Esaias of Sinai, who created a preliminary catalogue that unfortunately does not survive. The library was completed in 1734.

Today's library is not in the same building. In 1950 donations from the Greek diaspora in Alexandria aimed to create a new extension that was built out of stone and concrete along the south walls of the monastery. The manuscripts, printed books and archives were transferred to it in 1951, and they have been housed there ever since.

In 1975 an important discovery was made. Archmandrite Sophronios, the treasure keeper of the monastery found some thousands of fragments of manuscripts, but also some complete volumes, which had been stored in a room within the tower of the north wall. This room had been used to store manuscripts in the early centuries and when the first library was completed in 1734 the damaged leaves were left behind. However, an earthquake caused the floor above this room to collapse and these manuscripts were hidden under rubbles and were consequently forgotten. Archmandrite Sophronios, recovered them during the renovation of the tower and soon these manuscripts became known to the scholarly world as the "New Finds". Some of the most important fragments to have been found are the twelve leaves and the several fragments of the *Codex Sinaiticus* and leaves of the eight-century *Ladder of Divine Ascent* by St John Climacus.

1.2 Methodology and aims of the research

1.2.1 Aims of the research

This research was prompted by the importance of the decorated bindings at St Catherine's for increasing our understanding of Greek bindings, their circulation and the workshops which produced them. Apart from 89 bindings from the collection which Boudalis presented in his thesis and a handful of individual references in other articles, the majority of the collection has remained in the dark. As a consequence this thesis aims to further our knowledge of bookbinding activities within and around the monastery at different periods and to understand the links that the monastery had with centres of manuscript and bookbinding production.

Of the 3,307 bound leather-covered books in the library, 1,195 have been decorated by means of finishing tools that were used either cold or heated, and either blind or with gold or silver on the leather of the covers. These decorated bindings have provided the main material for examination, since it was aimed to create some order out of the bookbinding collection, based on the similarities of their decorative and structural characteristics.

Until now the study of the decoration of Greek bindings has been largely limited to the examination of small groups of bindings found within the collections of several different Greek monastic and public libraries and also in western European public and research libraries. With the exception of Boudalis (2004) research so far has therefore provided only a fragmented view of the evolution of and influences on Greek binding and consequently of its decoration.

By contrast this research concentrates on one library only. It takes into account the entire collection of manuscripts of the Saint Catherine's library, making no distinction between bindings of different artistic qualities and significance, or of specific periods of interest. This has the advantage that a large variety of samples is included, representing the widest possible range of binding types and qualities within both monastic and commercial bookbinding production and offering an opportunity to investigate the variety of the bindings that formed the Greek Orthodox monastic library at different periods. Within

this variety, it has proved important to identify the different binding workshops that had connections with the monastery and which produced bindings that can be grouped by means of decorative and structural evidence. Through such identifications it has been possible to establish links between manuscripts within the library. The twofold aim of the project was therefore defined as:

a) **the classification of the finishing tools found on the bound manuscripts in the library of St Catherine's Monastery, based on rubbings of their impressions.**

b) **To establish links between the decorated bindings through the comparison of their finishing tool impressions and structural features, and where possible to attribute them to specific workshops, dates and origins.**

1.2.2 Review of current methodologies

Following on from the work of E. P. Goldschmidt in the 1920's, the study of the decoration of bindings has been the subject of serious academic research. It has proved to be the most popular approach to the study of bindings primarily because the decoration of bindings is the most visually accessible and appealing part of the book as an object. The identification of individual finishing tools used in the decoration may open a possible way for a binding to be dated and attributed to a particular binder or workshop or to the owners of the books who commissioned them, even if no other indication of provenance is available. In M. Foot's words *"the scholar can isolate facts by painstaking comparison, can identify tools and groups of tools, in an attempt to create order out of aesthetic pleasure"* (Foot, 2004, p.14).[4]

Plenty of work has been carried out since Goldschmidt on organising and comparing finishing tools from bindings in order to lead to their comparison, and many catalogues of rubbings from western bindings have been published, each providing suggestions on how to classify and present rubbings (only indicatively, Haebler 1928, Kyriss 1951, Schunke 1962, Carvin 1988, Gid 1984, Hohl 1989, Gid & Laffitte 1997). Two significant works attempted to give a system to classify finishing tools. Federici & Houlis (1988) and later Cockx-Indestege & Storm van Leeuwen (1991) presented each a system by which tools could be organised by their characteristics (i.e. motif, shape, type of tool, etc), and also gave two systems for naming the individual tools. The concern of organising and classifying finishing tools was addressed further through an innovative approach by the *Einbanddatenbank* (EDBD), an online database of thousands of rubbings collected by different scholars, which uses a common electronic platform and the same classification system. However, the same problem applies to all of these classification systems. The descriptions of the motifs and their suggestions for classifying them are subject to the correct interpretation of the motifs and also their categorization is complex and on several levels, which makes the process of retrieving a specific tool complicated and time-consuming.

[4] Foot, Mirjam (2004). 'Bookbinding research: pitfalls, possibilities and needs'. *Eloquent Witnesses. Bookbingings and their history,* p.14

The development of a methodology dedicated to the identification of groups and the comparison of bindings by means of their physical features is a topic that has not been covered sufficiently in current literature. Several publications, referring mainly to western bookbinding, discuss the concerns and processes involved with the study of the technical features of bindings (Goldschmidt 1928, Oldham 1952, Schunke 1977, Pearson 1998 & 2004) or demonstrate the results of binding comparisons (only indicatively, Hobson 1945, Vezin 1970, Nixon 1970, Foot 1978, Schmidt- Könsemüller 1980 & 1985, Hobson A.R.A 1989, Nuvoloni 2000, Pickwoad 2004, Storm van Leeuwen 2006), for which a methodology has clearly been followed by the authors, but thus far this process has not been published as a defined set of technical descriptions of bindings required to permit comparison. Houlis (2008) suggested a methodology for comparing the decoration of Byzantine bindings, which provides guidelines on how to establish the levels of relations of bindings, yet this concentrates entirely on the decorative similarities of bindings and omits the necessary process of comparing their structural features.

A number of publications (Federici 1993, Federici & Houlis 1988, Petherbridge 1991, Pickwoad 2004) which include a section or concentrate specifically on Greek bindings provide suggestions for the systematic recording of the structural features of bindings in the form of documentation. Such documentation systems are useful guides to the type of evidence that should be looked for when comparing two or more bindings. As the study of bookbindings is gradually becoming an integral part of bibliographical study, it becomes apparent that the methodology for documenting binding structures does not necessarily allow different structures to be compared in a useful manner. This is in great part because within a documentation system, the information that is significant for comparing bindings is either not recorded at all or it is not separated from the information that is not significant, and undoubtedly not all the parts of a binding can offer material for direct comparison with another. Depending on the extent of the documentation and the number of bindings being compared, the documentation methodology can prove to be either too short or too detailed to make effective comparisons between bindings possible. This proved to be the case with the documentation records of the bindings completed during the *St Catherine's Library Conservation Project,* which provided the majority of

the information required in this thesis. However, since there was more information than needed it had to be filtered and refined to extract only the necessary parts.

The reason for this gap in codicological studies is perhaps that most comparisons of bindings have concentrated on small numbers of bindings that can be examined at a case-study level based on the particular features they incorporate, without the need to develop a strictly defined investigative methodology, which is required when handling hundreds or thousands of bindings. A notable exception is the thesis of G. Boudalis (2004), a pioneering work in which a well-structured process of analysis and comparison of bindings is presented and used, in order to explore the similarities of the decorative and structural features of 419 bindings, out of which 128 bindings eventually fall into the distinct groups that the author discusses. His methodology has been followed in this thesis for comparing the structural features of bindings, once the groups of bindings had been formed. However, a methodology for the process required to form groups was still lacking.

Though the need for such a methodology has been identified, the lack of an established terminology for describing the structure and the materials of Greek bindings would have made the process of comparison difficult to achieve. In addition the qualities and the technical details within the structure of a binding that need to be considered for binding comparison are frequently the most difficult to describe. Atsalos (1976, 2000) acknowledged this gap and presented a study in which he suggested Greek terms to be used in Greek bookbinding, which were collected from inscriptions found in manuscripts. To this end, the project of the *Ligatus Research Centre,* on the glossary of bookbinding terms, including those of the Greek binding structure was a considerable help, which, although it was an ongoing project at the time of this research, offered suggestions and often solutions to terms that were looked for.

As a large part of this research involved the comparison of bindings and given the above-mentioned limitation, a new clearly-defined methodology was required and established specifically for the requirements of this research. The currently available bookbinding terminology was used, occasionally with some discretion as to its suitability for the description of what was being observed. The classification system of Greek endbands as

presented by Boudalis has also been adopted, as it provides a complete and adequate methodology for their description.

1.2.3 Collection of research material

This research began during the final stages of the 5-year-long condition assessment of the manuscript collection of the library that formed part of the Saint Catherine's Library Conservation Project. The task of the surveyors of the manuscripts during the condition assessment was to complete a structured report (Pickwoad 2004) in which detailed information about the bindings and their condition was recorded, supported by several hand drawings, slide photographs of the bindings and interesting details, as well as rubbings of the finishing tool impressions found on the covers of the bindings. This greatly affected the data collection process of the research.

The rubbings constituted the main raw material for this research. They were housed in the Saint Catherine's Project Office, Camberwell College of Arts, London, in filing cabinets, alongside the survey forms and the slide photographs, all of which were made available for this research.

The rubbings were recorded on fine drawing paper (approximately 60gsm), with a medium to soft black lead pencil (HB to 2B). The majority of the surveyors recorded one tool impression at a time, but this was not a strict rule, as the complexity of the decoration of some bindings and the judgement of the surveyor often resulted in rubbings of groups of tools. In case where the dense and complex decoration made the distinction of individual tools difficult or even impossible, a single rubbing of the entire cover of a binding has been taken.

It is remarkable that despite the significant technological advances of digital imaging over the last decades, rubbings on paper remain by far the best way to study tooling on bindings. They not only constitute an adequate means of recording the tools, but they also provide a clear image of the motif, which is occasionally sharper than looking at the original tooling on the leather. For many years it has proved the preferred method for recording and studying them, and there was no need to look for any alternative for the purposes of this research. However, one difficulty encountered during my examination of

the rubbings from the survey was the inconsistency of the style and quality that they presented. Although the 35 different surveyors who made the rubbings were skilled conservators with a sound knowledge of book structures and an understanding of the importance of making high quality records, it was inevitable that different hands would produce different qualities of rubbing. The choice of an HB over a 2B pencil can be significant and in some cases details such as the angle of the pencil while taking the rubbing or the firmness and precision with which the pencil is drawn over the paper will influence its quality. This is particularly true if the impression is deep in the leather, or if there is gold or silver leaf which could be damaged by a rubbing taken with too much pressure. Taking a good rubbing is a skill that develops with practice, but the large number of rubbings that had to be recorded as part of a repetitive process in which a hand might become inconsistent, meant that it was to be expected that some rubbings would offer less clarity than might be desired.

However, the majority of the poorer-quality rubbings were the result of worn or damaged bindings. Most of the books in the library of St. Catherine had been heavily used for the liturgical and personal needs of the monks over the centuries, leading to natural wear and the abrasion of the leather surfaces, thus reducing the quality and depth of the tooled impressions. The conditions in which they have been housed have been known to us only from isolated references since the seventeenth century, before which there are even vaguer records which suggest that the manuscripts were at times *"inappropriately stacked one on top of the other in storage rooms scattered about the monastery"*[5] and it is very likely that bad storage has been largely responsible for the poor condition of many of the volumes. The difficulties that arose from the poor quality of some of the rubbings were more clearly evident at the stage where the rubbings had to be compared to each other and where absolute certainty about the results of their comparison was crucial, as will be discussed later (1.5).

From an early stage of the research it became clear that it would take a great deal of time to identify, organise and study the large number of rubbings, which were recorded on approximately 1500 sheets of paper. Paper rubbings occupy a physical space in whatever storage system is used, and therefore they can only be allocated a place according to one

[5] Digbasani (1992), 'Η Σιναϊτική βιβλιοθήκη'. *Θεολογία, 1992-93, Α-Β,Γ,Δ,* p.829

type of arrangement at a time, for example by theme. This would be an acceptable option for anyone attempting to organize and compare small numbers of rubbings where it is still possible to rely on visual memory to make other connections. However, the quantity of rubbings that had to be dealt with for this research required an alternative approach as it would be very time-consuming to work on the actual rubbings, with the added factor that access to the rubbings was needed according to a range of different criteria.

Scanned images of the rubbings were considered to offer a more useful means of studying them. Scanned copies are a safer option with regard to the preservation of the original paper rubbings as they reduce the need to handle them. Excess handling of paper rubbings frequently leads to their deterioration, as they can easily smudge and thus lose their sharpness. This was a particularly important consideration for this project, given that access to the monastery and even more so to the manuscript collection is both expensive and restricted, therefore limiting the possibility of replacing a damaged rubbing. The long-term stability and preservation of the rubbings was essential and as they needed to be referred to frequently, the provision of surrogate copies was an important consideration. There are further practical advantages in using scanned images rather than paper rubbings, which are related to the ease of retrieving them for viewing through an image browser,[6] their portability, the ability to reproduce them quickly without loss of quality and, as will be explained later, the various possibilities of comparing them through digital imaging techniques (1.1.9).

By the end of the scanning process, 5528 individual tool impressions had been recorded, which consisted both of unique instances of tool impressions and of multiple rubbings of the same tool as found on different bindings. When more than one impression from the same tool was recorded from one binding, only the best impression was selected. These rubbings were examined carefully, compared with each other, grouped and eventually classified.

The Saint Catherine's Library Conservation Project records have been the source for much of the information that is used in this research regarding the structural features of

[6] There are several commercial image-viewing software packages available. Some that were found useful in the course of this research were: Windows Picture Viewer and ACDSee Pro.

the bindings studied. At an early stage of the Saint Catherine's project these forms were scanned and the information they contained was transferred into an electronic database[7]. The slide photographs of the bindings have been a valuable resource, both for the examination of the decoration of the bindings and for the identification of the structural features of the bindings. These slides have also been scanned and incorporated together with the survey records and the scanned rubbings.

During the course of this research, three visits were made to the monastery in order to re-examine certain bindings that were of interest, to re-take rubbings and photographs of bindings and to complement the records I had for each manuscript and its binding with palaeographical notes. It is important to stress that there is no complete catalogue of the manuscript collection published so far, other than Kamil's catalogue (1970), which contains only brief and often mistaken information for the manuscripts. During the final year of the research the first volume of the catalogue of Balageorgos & Kritikou (2008) on the music manuscripts of the library was published, which contained analytical palaeographic information on 124 manuscripts. The lack of palaeographic research on the majority of the manuscript proved to be a considerable disadvantage, since the transcriptions of the majority of the inscriptions found in the manuscripts and information on the dates and origin of the manuscripts was not available, but had to be examined as part of this research

An unexpected, yet welcome discovery during one of my visits to the monastery, added significantly to the material of this research, and also affected the material that is presented. This was the discovery of 40 original finishing tools within the monastery, which proved to be tools impressed on numerous bindings of the manuscript and printed book collection. These tools were recorded and examined analytically and are presented in Part 2.

[7] Velios, A. & Pickwoad, N. (2005). 'Current use and future development on the database of the St Catherine's Library Conservation Project'. *The Paper Conservator, 29,* pp.39-53.

1.2.4 Designing and using a survey database

The volume of the scanned rubbing material necessitated a systematic approach for the examination, characterisation and classification of the tooled impressions, particularly given the time restrictions and available resources for this research. In order to take advantage of the possibilities offered by electronic database systems for storing, archiving and retrieving information it was important to explore the best options for the organization of the information obtained from:

a) the rubbings
b) the manuscripts.

Both the individual rubbings and the manuscripts encapsulated a variety of information which needed to be identified and organised in distinct groups (categories and sub-categories of information). This information was either textual or numerical. Since rubbings existed as scanned images, the database needed to handle these as well as text. The same applied to the drawings of the decorative patterns of the manuscripts as described in the Saint Catherine's Project records. Finally the links indicating the existence of a rubbing of a manuscript had to be maintained.

It was decided that a Microsoft Access database package was sufficient for the requirements of this research, as it could manage the type and amount of data expected to be researched quickly and adequately. Moreover, apart from the specific requirements of this database, it was the efficient and user-friendly interface of Microsoft Access that led to the decision not to employ more complex database systems such as MySQL or Oracle especially when the available software tools for such systems require long training periods on behalf of the user.

The database stores the information in several tables, each used to store unique types of information following the *normalization* rules of the relational database model. In order to describe a manuscript or a rubbing, information from each of these tables was selected, as it is demonstrated in the following illustration:

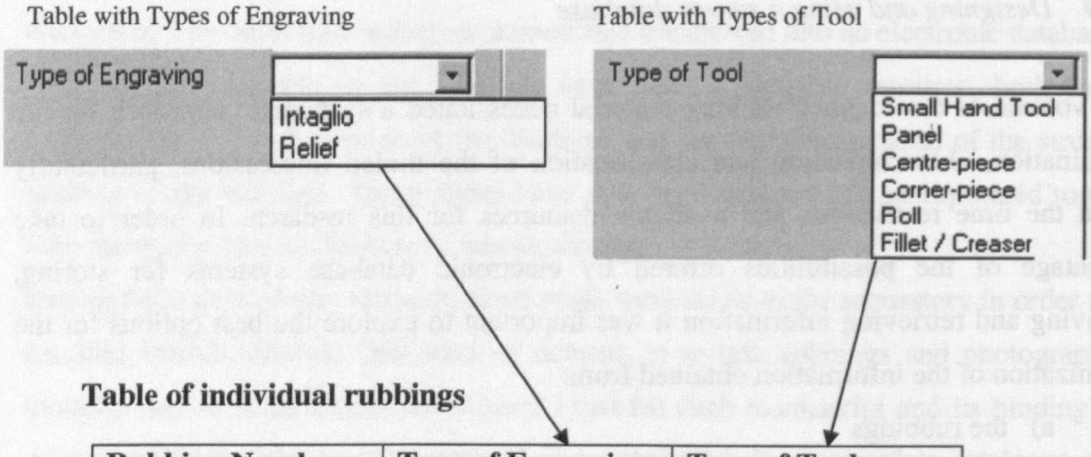


Table of individual rubbings

Rubbing Number	Type of Engraving	Type of Tool
0001	Intaglio	Small Hand Tool
0002	Relief	Corner-piece
…	…	…

Figure 1- Example of attributing characteristics to individual rubbings by selecting information from different tables.

The most important decisions to be made in setting up a database are those which identify which kind of information to include. It was critical to balance time issues with gathering enough information about every rubbing and manuscript, so as to allow the grouping of the tools within manageable numbers and entities that would be useful for matching tool impressions. The type of information for each individual rubbing had to be specific enough to make it distinguishable and identifiable but also flexible enough to allow the formation of broader categories of common features that could subsequently be compared and arranged through visual observation.

The classification of the decorative motif of the impressions is a significant factor in identifying individual tools, which is based on the design engraved into the tool. The classification systems of Federici & Houlis (1988), Cockx-Indestege & Storm van Leeuwen (1991) and that of the *Einbanddatenbank* were found to be too over-elaborate and broad for the requirements of this research and were therefore not adopted.

On account of the large number of the impressions and the variety of the motifs, it was necessary to divide the depicted themes into five main categories, each of which was

divided into a number of sub themes.[8] The intention of this categorisation was to form broad groups into which similar designs could fall, without the need to have specific terms for every variation of design, which would make this list too long and render it difficult to use for the purpose for which it was made. Even so, the largest groups of the divisions listed above (e.g. *Vegetation / Leaves and branches* and *Ornamental*) contained more than 300 entries each. Certain terms used are derived from ecclesiastical, architectural or art-historical terminology.

The selection of terms used to describe the decorative motifs of individual finishing tools was occasionally a matter of personal preference, and it was clear from an early stage that the terminology and typology that I used would occasionally deviate from the terms used by other researchers. The choice of terms however, was for personal use, in order to aid my visual memory since the classification of the tools and their arrangement in the corpus of finishing tools (Volume II of this thesis) was intended to be arranged by the five main categories only, arranged by the type of tool and then by similarity of the motifs but identified only by an accession number. This was considered a quicker and easier way to retrieve a tool.

There are two points that I considered crucial:

- Being able to communicate my terminology and typology
- Forming a list of descriptions that would aid my personal visual memory and that I would find practical in order to group the tools in a consistent manner, even if the descriptions were not 100% accurate at the first stage of classification.

The amount of information included in each description would determine the extent to which all the related information would be retrieved when putting a query to the database. This process of characterization was continuous, taking shape throughout the process of input and analysis.

[8]See Appendix IV, under *Tool Name* section

Two database forms[9] were designed as the interface through which information in the relevant tables could be inserted, in such a way as to allow this time-consuming process to be carried out as quickly and efficiently as possible. The first form (MANUSCRIPTS FORM) was used to input information about the manuscripts from which specific rubbings were taken and included room for some basic information about the binding and the decorative patterns. The second form (RUBBINGS FORM) was dedicated to describing the individual rubbings.[10]

Once the database was designed and constructed the next steps were:

a) the identification of impressions,

c) their description into the relevant fields of the database.

Of the 5528 impressions recorded, 1222 rubbings were duplicates of other, clearer rubbings, while a further 228 were of such poor quality that they could not be identified.

The initial objective of this research was to identify and group rubbings with similar motifs, following which their visual arrangement and comparison could take place. The database was therefore used to retrieve specific tool impressions through the use of "filters", (also known as "queries"), which could be applied in one or more fields, by which impressions could be grouped and compared.

1.2.5 Comparisons of rubbings

Finishing tools were engraved by hand, usually on brass or sometimes on iron, creating unique versions even of the same motifs. It is this characteristic that allows individual tools to be identified by their rubbings. The pioneering work of Staffan Fogelmark[11] has demonstrated that panel stamps[12] were occasionally cast, meaning that several exactly identical copies of the same panel could have existed simultaneously in the hands of

[9] A form is a type of a database object that is primarily used to enter or display data in a database, that is stored in tables.(After Microsoft Access 2002 Help.)

[10] See Appendix IV.2 for the full description of the Database Survey Form

[11] Fogelmark Staffan (1990). *Flemish and related panel-stamped bindings: evidence and principles,* New York

[12] "Panel stamps are large rectangular tools, carrying pictorial designs, which may be big enough to more or less fill the cover of a small book with a single impression." After Pearson, David (2005), *English Bookbinding Styles, 1450-1800,* London: The British Library & Oak Knoll Press, p.47

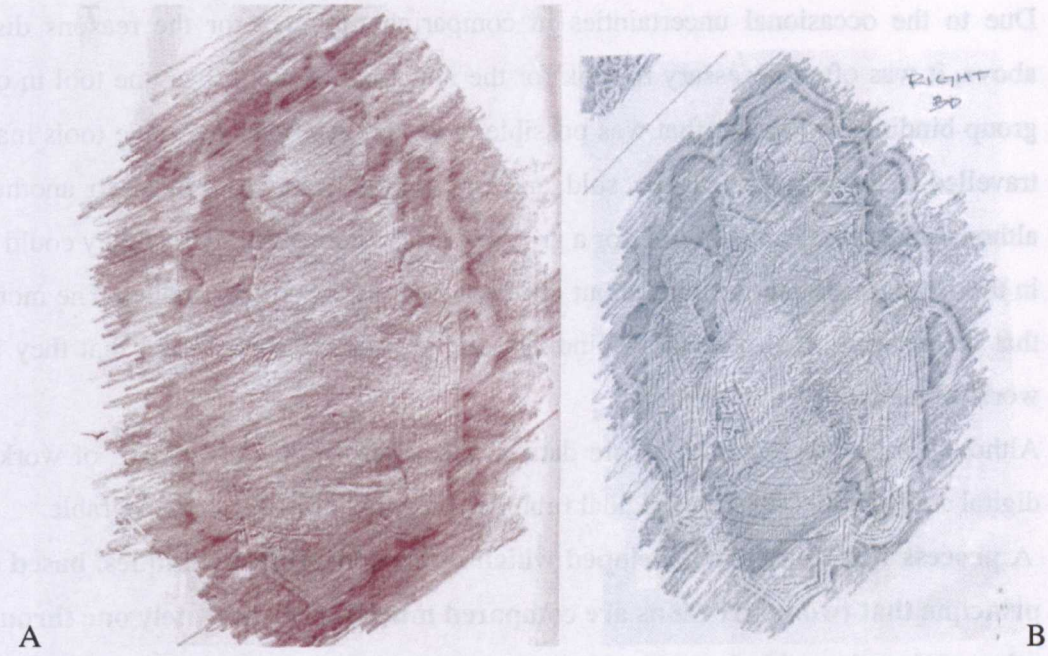
different binders in different places. Conclusions based on the comparison of such panels may therefore be unsafe, but no similar evidence for the casting of multiple copies of small hand tools, rolls and centre and corner pieces has so far been identified. However, it remains a possibility that certain types of large, centre-piece blocks may have been cast, though this has yet to be confirmed with solid evidence[13].

In order to prove that any group of multiple impressions was made by the same finishing tool, it has to be shown that the motifs compared are identical in every detail. The manufacture of tools with similar, even identical, motifs was common, as certain popular designs were often closely copied one from another and toolmakers adopted trends and fashionable designs at different times and in different places. It is therefore common to find tools with very similar motifs and even approximately the same dimensions, but a careful examination will show whether they are two entirely different tools, each most likely with its own history.

Scholars who have studied and compared rubbings of decorative tool motifs have up to now relied entirely on their ability to detect by eye the differences or similarities between them. This has been done either by comparing rubbings on paper side-by-side or by superimposing them over a light box. The results of side-by-side comparisons are likely to be to some extent subjective; while there might be enough evidence in the details of an impression, there are occasions where two different pairs of eyes would disagree. Superimposition over a light box is more accurate but when using this method there is a danger of smudging the rubbings and with frequent use they eventually deteriorate. A large part of this process usually involved comparing corresponding distances and measuring several dimensions of the impressions, something I have found to be occasionally untrustworthy (fig. 2). The reason for this observation cannot be determined with certainty. One possibility is that the leather covers on which the finishing tools are impressed are surfaces which are susceptible to dimensional changes related to damage or environmental conditions. This would mean that they could shrink, stretch or become flattened and distorted, so that impressions made by a single tool, when found on different types of leather, which might have reacted differently to such conditions, may as

[13] Personal communication with Mirjam Foot, 24.04.2007

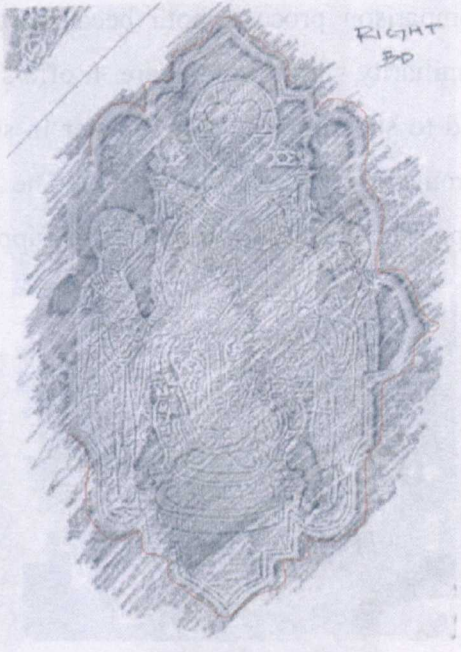
a result, not be exactly the same size. Other possibilities are that the type of the leather on which the finishing tool is impressed, the level of moisture in the leather during the impression and even the motions of the hand of the finisher, rocking and forcing the tool into the leather, are variables which could have the same effect on the sizes of impressions. Whichever explanation best fits the evidence, these are factors that can make the process of comparing different rubbings very difficult.



A B

Two rubbings from tool impressions identified as coming from the same centre-piece

Rubbing A is superimposed on rubbing B
(A on B)



The outline of rubbing A
(line in red), is superimposed on rubbing B, showing the small dimensional difference between the two otherwise identical impressions.

Figure 2 – Comparison of two impressions deriving from the same tool, with minor dimensional variations

Due to the occasional uncertainties in comparing rubbings for the reasons discussed above, it was often necessary to look for the matching of more than one tool in order to group bindings, wherever that was possible, with any confidence. Single tools may have travelled, they may have been sold and passed on from one binder to another, and although the same could be true for a group of tools, the possibility that they could appear in the same combinations throughout different periods is perhaps smaller. The more tools that are present on two or more bindings, the greater the chances are that they are the work of one binder or workshop.

Although rubbings remain the core data of this research, the advantages of working on digital copies rather than the original rubbings on paper have been considerable.

A process was therefore developed which utilizes imaging techniques, based on the principle that two impressions are compared much more accurately one through the other rather than side-by-side.

The computer software Adobe Photoshop was chosen as the imaging software for this comparison process, both because of its recognised quality and for reasons of my familiarity with this software. It offers the possibility of altering the opacity of an image and to superimpose it on another in such a way that the lower image would be visible through the upper image (fig.3). The level of opacity was gradually adjusted from 0% (upper image disappears) to 100% (upper image is opaque).

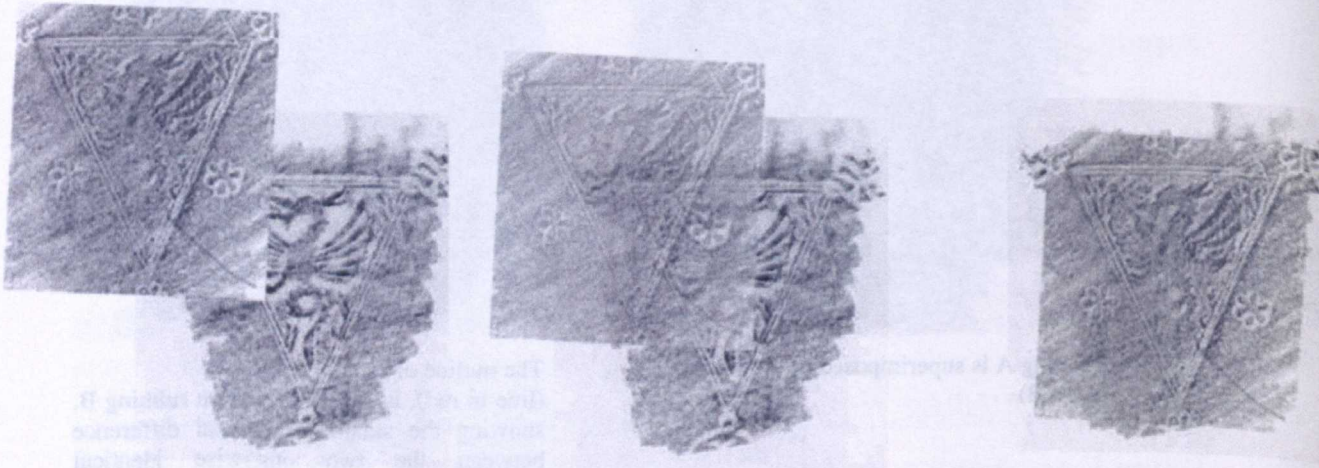


Figure 3- Three steps from the process of superimposing rubbings: a) Aligning the two rubbings, b) Changing the opacity of the upper layer and c) Observing the rubbings one through the other

This process does not constitute innovation in software development but only makes use of established software in new applications. It is a process that has been used extensively in other disciplines of digital imaging. However, as far as I am aware it has not been used or suggested for the comparison of rubbings and its development and application in this research has proved that it is a method that will undoubtedly assist the observer. The concept of superimposing two images of rubbings was also suggested by Muzerelle (2006). However, the imaging tools that he suggested and the comparison results that he has provided appear very subjective and as a methodology very time-consuming and inaccurate compared to the methodology presented here.

Visual observation was again the tool for the verification of any outcome from this comparison and naturally the eye of the observer quickly became trained to observe minute details. This technique[14] proved both quicker and more accurate than traditional side-by-side examination of rubbings, while safer for the preservation of the transferred impression than superimposing the original rubbings on paper over a light box.

It was interesting to notice that the distortion and dimensional differences between impressions from identical tools due to the processes discussed above can often be identified through this technique. In several cases, it was observed that impressions that were almost identical in most details were dimensionally different, nevertheless in a profoundly symmetrical and proportional way. One rubbing could for instance be a "stretched" version of another, perhaps 0.5mm longer in each direction, while having unmistakably similar details in their motifs. In most cases this phenomenon was apparent, supporting further the advantages of using imaging techniques for making comparisons of rubbings (see example in fig.2). It should be emphasised, however, that certain motifs encountered were produced in numerous variations of very similar designs, in some cases probably closely copied from each other, making it necessary to take the greatest care not to come to the wrong conclusions.

[14] See Appendix IV, for an analytical explanation of the process of superimposition.

An interesting development of digital imaging in recent years has been the applications of pattern recognition[15] for image analysis, a technique which was investigated for the purposes of this research as a possible way to automate the process of comparing rubbings. The time resources and specialist training that would theoretically be required in order to develop an adequate pattern recognition system within the scope of this research, proved to be prohibiting factors, particularly in comparison to the overlaying imaging technique discussed above, which is less time consuming and sufficiently accurate.

1.2.6 Comparison and grouping of bindings

The study of finishing tools leads to the grouping of bindings which share the same tools and leads on to the related study of their codicology and structural features. In most cases it was likely that a binder or a binding workshop would have certain habits in the way that repetitive processes or small details were executed, and where this was the case, the observation and comparison of their peculiarities become an indispensable part of the process of comparison. Distinct similarities between the structures of the bindings which shared the same tools were therefore looked for.

The study of the structural features of bindings is an area of research which has only recently begun to be considered systematically for its contribution to the history of bookbinding and the book-trade. Notable examples of the study of Byzantine book structures are the works of B.v.Regemorter (1954), J. Irigoin (1978), Grosdidier de Maton (1991), J. Szirmai (1999), G. Petherbridge (1991), G. Boudalis (2004) and K. Houlis (1992)[16].

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[15] *Pattern recognition aims to classify data (patterns) based on either a priori knowledge or on statistical information extracted from the patterns. The patterns to be classified are usually groups of measurements or observations, defining points in an appropriate multidimensional space*
(Free On-Line Dictionary of Computing, 2007,
http://www.swif.uniba.it/lei/foldop/foldoc.cgi?pattern+recognition)

[16] - Regemorter (van), Berthe (1954). 'La reliure des manuscrits grec'. *Scriptorium, 8*, pp.3-22.
- Regemorter (van), Berthe (1967). La reliure byzantine. *Revue Belge d'Archéologie et d'Histoire de l'Art,*, pp.99-142.
- Irigoin, J. (1978). La reliure byzantine. *La reliure médiévale: trois conférences d'initiation*, pp.23-54.

In order to compare specific features within groups of bindings, it was important to follow a consistent methodology of examination. The level of recording and analysis presented in the system of Boudalis (2004), contained useful advice yet it was considered too elaborate for this research, which is not primarily concerned with the structural history of bookbinding. Instead, a defined procedure was established which would make use only of the information that was necessary to record or extract from existing records and use for comparing bindings. These types of information were selected on the basis of finding aids for comparison that would initially not rely on the size of books. Details from the process of binding that might vary without relevance to a particular reason such as structural necessity were especially looked for. This information was organised into categories, as listed below:

1. Bibliographical information
   - Location
   - Date of manuscript and date of binding
   - Scribe's or binder's notes and other annotations of interest
2. Sewing of the textblock
   - Pattern of sewing stations
   - Preparation of the sewing station holes (for first bindings)
   - Single or double sequence of sewing
   - Identification and positioning of earlier and current sewing stations
3. Endleaves
   - Material
   - Watermarks
   - Format of the endleaves
   - Manuscript waste used as endleaves
4. Boards
   - Type of wood
   - Edge grooves
   - Board attachment pattern
5. Spine lining
   - Material

- Grosdidier de Maton, Dominique (1991). Nouvelles perspectives de recherche sur la relieur byzantine. *Il Colloquio internazionale di Paleografia e Codicologia greca (Berlino- Wolfenbüttel 17-21 Ottobre 1983), 1*, pp.409-430
- Szirmai, J. (1999). *The Archaeology of Medieval Bookbinding*, Aldershot: Ashgate.
- op.cit. Petherbridge, G., 1991
- op.cit. Boudalis, G., 2004
- Houlis, Konstantinos (1992). A research on structural elements of Byzantine bookbinding. *Ancient and medieval book materials and techniques*, Citta del Vaticano

- Type of lining (i.e. overall or transverse lining)
- Extent/ width of lining over the boards
- Manuscript waste used for lining

6. Endbands
   - Style of endband
   - Thread colours and decorative similarities
   - Frequency of tiedowns
   - Way of attachment to the boards
7. Leather cover
   - Turn-in finish at the corners (i.e., butting, overlapping)
   - Wooden pegs securing the turn-ins
   - Colour of the leather
8. Decoration
   - Layout pattern
9. Furniture
   - Types and materials
   - Method of lacing of straps inside the boards

Establishing evidence about a group of bindings is often difficult and in many cases may not be very revealing. When dealing with manuscripts in their first bindings where there is as yet no accurate information about the date of the manuscript or when books have been rebound, one has to rely on binder's notes, a note of ownership or purchase or other archival information to establish something of the history of a book. Unfortunately, these documentary sources are very rare, and even when found, not without potential pitfalls. A binder's or other notes might not be contemporary with the current binding on an earlier manuscript, and misinterpreting such evidence could lead to the wrong conclusions. As scholars of western bindings have shown[17], finishing tools do not necessarily disappear when their binders do, nor are they tied to one place. Boudalis also suggested this to be true for tools used by Sinai binders and this thesis aimed to prove this.

The observations and comparisons leading to the grouping of bindings, as described above, constitute a substantial part of the analytical process of this research. Information was gathered about possible links between the manuscripts and the patterns of trade and

[17] Foot, M. (1982), 'A London binding', *The Book Collector*, XXXI, pp.482-3

circulation between the monastery and places it had close relationships with, as well as on the binding activity related to these manuscripts. The large sample of bindings and rubbings examined supplied substantial material through which it was possible to demonstrate the appearance, development and replacement of different features in the decoration of the Greek binding. Therefore, another set of data, which derived from the observation of features from the decoration of the bindings recorded in the survey database, provided material with important statistical outcomes discussed in Part 4.

PART 2

ORIGINAL BOOKBINDING FINISHING TOOLS AT THE SAINT CATHERINE'S MONASTERY

2.1 Introduction to the finds

In July 2007, I examined a number of bindings in the library at Saint Catherine's, as part of research for this thesis. During my visit to the monastery, I had the good fortune to participate in a discovery which has proved unique of its kind and which has added greatly to our understanding of the craft of bookbinding, both in Greek monastic communities and elsewhere.

With the generous help of Father Daniel and Father Porphyrios, the previous and current treasure-keepers of the monastery, without whom this discovery would have been impossible, I was able to identify 37 decorative finishing tools discovered in a storeroom at the monastery. This exceptional find grew out of discussions with Father Daniel and Father Porphyrios during several afternoons of my visit. Speculating about the existence of finishing tools at Saint Catherine's led us to search for them in the monastery's many storerooms. Eventually, we came across a dusty wooden box of tools which Father Porphyrios handed to me for closer inspection. The oval box was inscribed inside the lid with the signature of Laurentios, archbishop of Saint Catherine's from 1592 to 1617. It contained old and disused files, gouges, chisels and needles, together with the finishing tools we had been seeking. The box and its contents seemed to have been forgotten over time, probably for centuries.

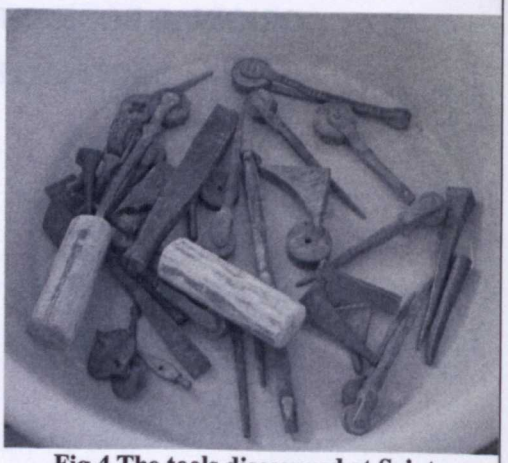


Fig.4 The tools discovered at Saint Catherine's were put in a bucket and handed to me for examination. They include rolls, corner-pieces, centre-pieces, small hand tools, fillets and creasers.

Fig.5 The signature of Archbishop Laurentios is inscribed inside the lid of the tool-box

Two more finishing tools were identified in a box of ink stamps that I was shown from the treasury museum. Another finishing tool (*Tool 40)* was uncovered a few weeks later by Father Daniel, who kindly shared his discovery with me, bringing the total number of finishing tools found at Saint Catherine's to 40. They comprise 14 rolls, four corner-pieces, two centre-pieces, 17 small hand tools, one fillet and two creasers. The tools were cast and/or engraved in iron, low carbon steel or copper alloy.

It was immediately apparent that the majority of the motifs engraved on them were already familiar to me from the impressions on numerous bindings in the library. Judging from the bindings, the tools can be assigned approximate dates. A group of seven tools, the earliest in the collection, can safely be dated to the end of the fifteenth or the very beginning of the sixteenth century, while the remainder date mainly from the first and the last quarter of the eighteenth century. The finishing tools were documented during my stay at the monastery, when I had the opportunity to record them with smoke and ink proofs on paper and digital photographs.

This discovery owes its importance to the negligible number of pre-industrial finishing tools that survive worldwide. Old tools were considered of little value and they were often recycled and then discarded, or melted down for the sake of their metal. Out of those few that have survived, 8 are small hand tools in the British Museum that were noted by Hobson (1938, p.243), two of which he believes date as far back as the twelfth-thirteenth century, bearing characteristic Romanesque motifs and the other six date from the fifteenth century or later. Janc (1974, p.28-30), in a lengthy account of Serbian bookbinding, described the tooled decoration of Serbian bindings and reproduced two centre-pieces of Eastern-European provenance, with religious representations and one small floral hand tool[1]. None of the above tools however have been identified on any bindings.

Moreover, with the exception of a handful of isolated examples, finishing tools linked to specific bindings are very rare indeed and examples such as the plaque of 1562A.D. from Averbode, Abbaye des Prémontrés (Cockx-Indestege & Storm van Leeuwen, 2005, p.62) or

[1]These tools date from the 14th, 17th and 18th centuries respectively. Two are now at the Museum of Applied Arts in Belgrade and the third at the Monastery Nikoljie in Obcharsko-Kadlarskoj.

the Bodleian Library *Janitors list 582* of 1635-36A.D. (Macray, 1890, Rogers 1991 and 2.4.1 in this thesis) that is recorded on three bindings, are the only recorded surviving examples. Finally, a more substantial discovery was made in Krakow, Poland of 20 small hand tools dated from c.1500, which were related to bindings owned by the Polish humanist Nikolaj Czepel (Chmiel, 1917 after Szirmai, 1999, p.175).

Few Greek monastic libraries can claim a continuous and centuries-long relationship with an attached workshop that produced and repaired bindings for its shelves. Evidence of bookbinding activity (other than the books themselves) and archival information is scant or non-existent. Our knowledge of the organisation of bookbinding workshops in Greek monastic communities is scantier still, owing to the lack of first hand evidence, such as preserved workshops, equipment and, perhaps most important of all, decorative finishing tools, which are the most straightforward and traditional means by which a workshop can be linked to the bindings it has produced.

The discovery of these tools triggered the investigation of known aspects of the bookbinding workshops of Sinai. Were these organised workshops, that consisted of a number of binders working side-by-side, or should the binding work be attributed to individual monks carrying it out as part of their daily monastic life and obligations to the monastic community they belonged to? There was also the question of whether they were binding books for a clientele outside the needs of the library and the monastic community as part of their binding activity, and thus to ascertain whether these workshops resembled commercial workshops in any way. It was also important to understand where binders got their materials and tools from, and to establish what may have been imported or made by the binders themselves, which would automatically reflect both on the skills of the binders and on the centres of influence on them at different periods.

Fogelmark's pioneering work (1990) was able to demonstrate that panels were occasionally cast, and at the same time to cast doubt on the uniqueness of centre-pieces, corner-pieces and rolls, for which there was no evidence to prove whether or not they could be. The survival of a sizeable collection of historic finishing tools provided the opportunity to try to

answer one of the most important questions: is there any evidence these tools were made by a casting process?

That these tools have also now been linked to the bindings they were used to decorate allows us to draw two conclusions. Firstly, it has been possible on certain occasions to date a number of finishing tools through the dates of the bindings. Secondly, the provenance of a number of bindings has been confirmed. Regardless of whether these tools were made at the monastery or whether they were imported, the bindings that were decorated with these tools were most certainly made at the monastery, or within close proximity to it. The evidence extracted from the relevant bindings and the notes they contain put this beyond doubt, as will be shown below. It is unlikely that a binding would travel along with the finishing tools that were used to decorate it, although theoretically this is possible, given the continuous travelling of monks between the monastery and its dependencies. Finally, these tools reveal further evidence: they throw light on the techniques used in their production; they reveal the methods used to make the impressions on a binding and they can help us understand the background of their makers, as well as the relation of the quality and condition of the engraved surfaces with that of the corresponding impressions.

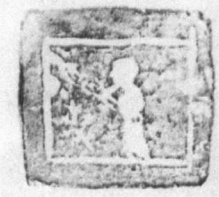
The finishing tools were documented and recorded with smoke proofs and ink proofs on paper and with photographs. Due to the limited time that was available to carry out the documentation, it was not possible to carry out a microscopic examination, which might have allowed the identification of the metal alloys used and the process of their manufacture.

The tools are presented in sequence according to the accession numbers they were given at the time of their recovery and examination at the monastery. They are organised in four sections: a) small hand tools, b) rolls, c) centre and corner pieces, d) fillets and creasers.
Ink proofs, smoke proofs and rubbings have been reproduced in their actual size, accompanied by measurements. The photographs are not all reproduced to the same scale. They have been sized according to the image and the need to discuss particular features of each tool.

The descriptions of the materials and alloys of the tools have not been confirmed by analytical methods: they are based on visual observation, and may not, therefore, be entirely accurate. Further examination and analysis is required, which at present are beyond the scope and the resources of this thesis.

Fig. 6, a): General view of the collection of finishing tools discovered at the monastery, b) 8 of the small hand tools, c) perspective view of 8 rolls, some still attached to their shanks, d) perspective view of 6 small hand tools, e) perspective view of corner- and centre-pieces found among the 40 discovered tools.

ILLUSTRATIONS OF THE 40 DISCOVERED FINISHING TOOLS



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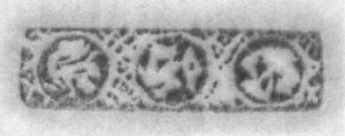

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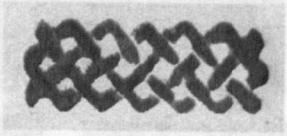

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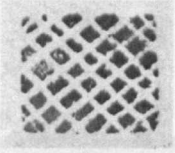

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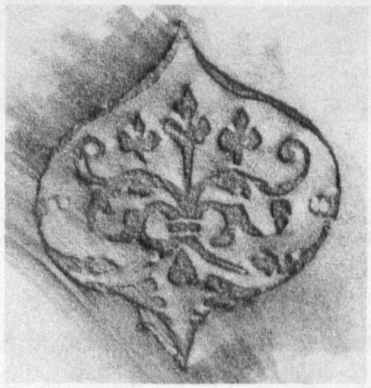

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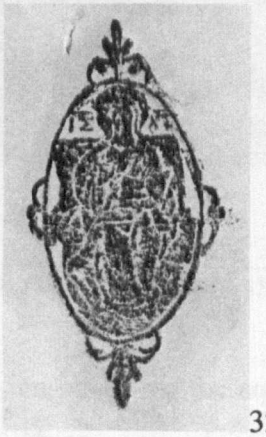

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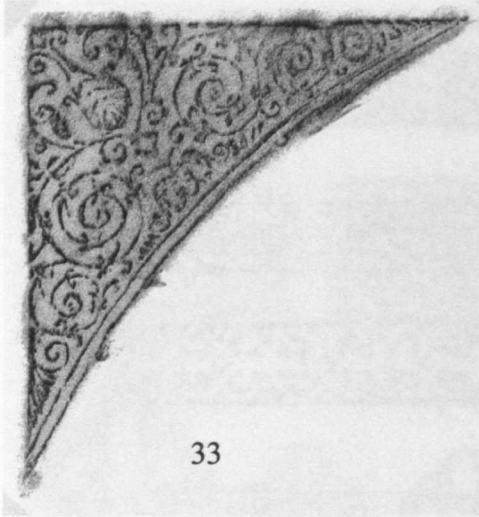

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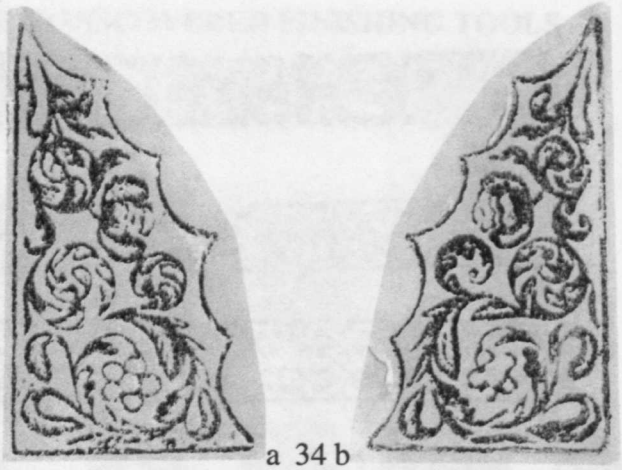

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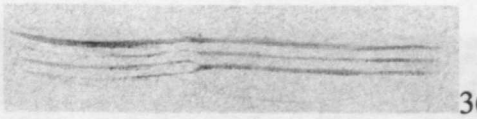

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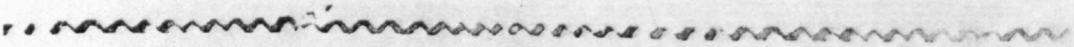

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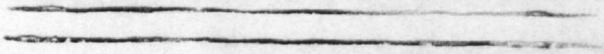

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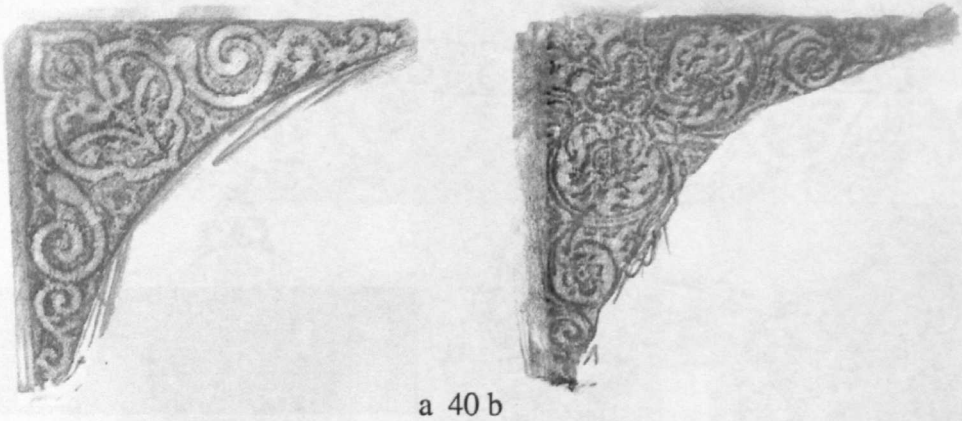


a 40 b

2.2 Small hand-tools

This section describes the 17 small hand tools that have been recovered among the finds. There are nine intaglio and eight relief tools, the majority of which have a floral or an abstract motif. Only two have an animal motif and one has a human figure representation. Copper alloy is the most frequent material used, however three tools are made of either iron or low carbon steel.

2.2.1 Tool 1

Fig. 7 - Tool 1: a) actual-size smoke proof, b) photograph of face, c) side view 1, d) side view 2

Tool 1 is an intaglio small hand-tool, engraved on the square face of a long, heavy and roughly forged iron or iron alloy bar with an uneven hammered appearance that measures

172mm in length. The lines of the engraving are sharp and tool marks are apparent, often skidding off the intended design.

There are a few marks on the body of the tool that show evidence of a forging[2] process, i.e. one piece of metal compressed onto another, but not having been flattened out and completely unified. The most remarkable feature of this tool, however, is its long square shank and opposite end to its engraved face, which resembles that of a metal punch, intended to be hammered rather than impressed by hand on a surface. This end of the tool bears the clearly identifiable marks of hammer blows, which support this assertion.

Compared to most modern or post eighteenth-century tools that we know of, it is of a strikingly different appearance, being of the wrong shape to take a wooden handle and suggesting an entirely different way of tooling a book cover. However, French eighteenth century bookinder's manuals also show that this approach to tooling was not entirely unknown in the West, in which it is described for these tools that "...you then hit them with a hammer" (Foot, 2006, p.77). Saddlers' stamps[3], even modern ones, which are also made of a single piece of solid metal and are impressed by being hammered on damp leather, often resemble this tool closely. These tools do not require to be heated hence the lack of a wooden handle. Conroy (2002, p.xx) may be right to wonder *"if this might have been the technique used before the use of gold gave binders familiarity with hot tools"*. We know, for example, that stamping with cold iron tools was used on medieval leatherwork as far back as the twelfth century if not before, based on the Coppergate archaeological excavations in York (Mould, Carlisle & Cameron, 2003). As far as this particular tool is concerned, we could assume that it was used in a similar way. However, what has not been possible to establish is whether this tool was made originally to be used as a bookbinding decorative tool, or whether it crosses over from a different decorative craft, such as metal punching or other decorative leatherwork and if so, what that could mean in relation to its

[2] Forging is one of the oldest metalworking techniques that involves the shaping of a metal by compression of different metal parts together by hammering them, either cold or at high temperature.

[3] These are decorative stamps impressed on leather used for decorating horse saddles, whenever saddles were decorated. Saddle-making is a craft in where lavish decorations that make use of impressed stamps are occasionally employed. It is worth noting here that the leather used for making saddles is significantly thicker and harder than bookbinding leather, hence the methods of application of decoration are not always parallel between the two, although both involve the decoration of leather. Apart from the technique of cuir-ciselé (leather-cut work) which has been used in both crafts, this newly-discovered bookbinding tool, which looks like a saddler's stamp and was impressed in the same way, identifies one of the few crossovers that can be identified.

use by the binder/ finisher. Was he perhaps, involved with the other decorative crafts, for which many tools including those for decoration came out of the same tool-box? It would have been very interesting to find an impression of *Tool 1* decorating a metal plaque or a leather purse, as it would reveal more information about the binder and his tools. However, the author has been unable to source any such material.

The engraved motif depicts a standing figure; the engraving is not very refined but from the few features that are apparent we can identify that it depicts the Prophet Moses. The figure faces towards the left where the hand of God extends from the top left corner to deliver the ten Commandments. Rough strokes are seen on the bottom left corner that resemble flames, representing the flames engulfing the Burning Bush.

The representation of the tool is inspired by the iconographic depiction of Prophet Moses. A famous example is the icon that was made in Sinai at the end of the twelfth or beginning of the thirteenth century (fig.8) and still survives at the monastery, one of the most splendid specimens of Byzantine art to have been made there (*Sinai, Byzantium, Russia,* 2000, p.143).

Fig. 8 - Icon of *The Prophet Moses* from the Monastery of St. Catherine, 12th-early 13th century.

There are two engraved markings on one side of the shank of the tool (fig.7c). The engravings resemble both the Byzantine state-control stamps that were punched on metal objects or on pure metal to denote their certification or the earlier, pre-twelfth-century possession stamps that were used by the emperors and high officials[4]. However, it has not been possible to identify the significance of the particular markings.

An impression of this tool has not been found on any manuscript bindings in the library of St.Catherine's, although a similar tool has been recorded on the binding of an Arabic manuscript of unknown provenance (S.A.107) that dates from c.1393.

The date of manufacture of this tool is unknown and so is its provenance. Its resemblance to the impression on the binding of Arabic manuscript (S.A.107) only allows us to

[4] personal communication with Dr. Marlia Mango, University Lecturer in Byzantine Archaeology and Art, University of Oxford

speculate on a date in the fourteenth century. The iconographic representation derives from a tradition related directly to the monastery and the Burning Bush that lies within its walls, but this too may be a coincidence. However, we should not rule out the possibility that it was indeed made at the monastery. Its rough and "unfinished" appearance, as well as mistakes in the engraving, may, moreover, suggest that this tool is a product made for personal use by a possibly not very experienced tool maker. The overall low quality of the tool renders it difficult to believe that it could have been a product made for sale by a specialist workshop.

2.2.2 Tool 2

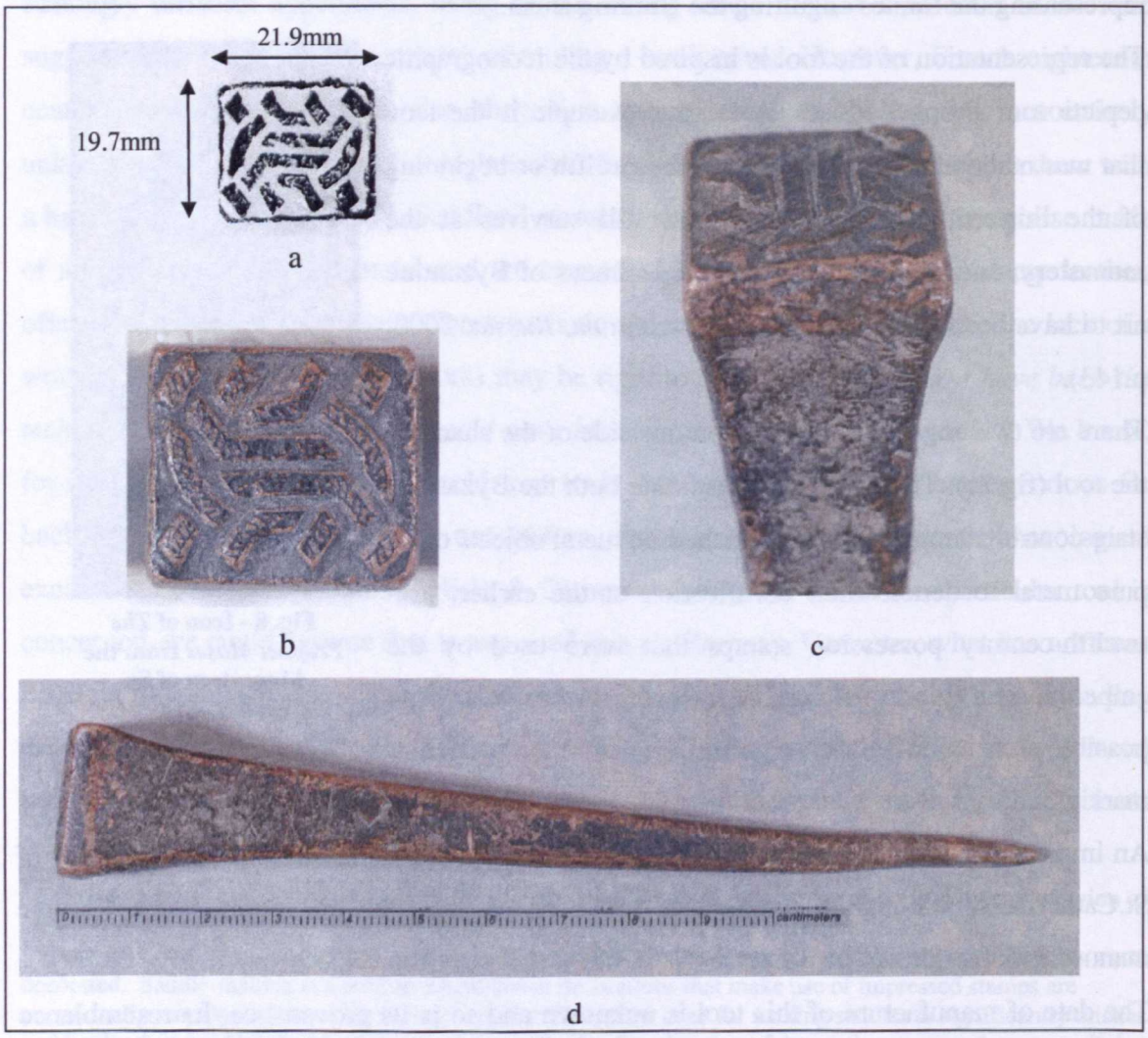


Fig. 9 - Tool 2: a) actual size smoke proof, b) photograph of face, c) side view 1, d) side view 2

Tool 2 is a relief small hand tool made of copper alloy. The strong reddish colour of the alloy, combined with a blackening effect may imply that it is bronze of high copper content[5] or the result of the state of the oxidation of copper (Cu^{+}) (Selwyn 2004, p.51-60). It may also be the result of the alloy containing cuprite (Cu_2O) that initially has a red colour but when exposed to high temperatures it will form a solid black layer that is impossible to reverse[6]. However, more analytical methods are needed to confirm the exact consistency of the alloy and its colouration. The tool has most definitely been engraved by hand, as evidenced by the deep grooves and tool marks, especially at its centre (Fig.9c). Unlike *Tool 1*, it has a long tapered shank (137mm), most probably in order to take a handle, which has now been lost. It has not been possible to identify if the blank[7] was produced by casting or by cutting and shaping it from a metal sheet or larger metal piece, although casting would seem more likely.

The motif is an abstract knotwork pattern, similar to those found on numerous Italian bindings from the end of the fifteenth century onwards (Hobson, 1989). However, as a design it can be traced further back to Islamic Mameluk bindings of the thirteenth and fourteenth century, from where the Italian binders copied and adopted it. (Raby & Tanindi, 1993, p.7)

This is, out of all the tools discovered, one of the most frequently used tools on the bindings from the monastery. Although the origin of its production remains unknown, it was certainly being used at the monastery for approximately 150 years, from the end of the fifteenth century until c.1655. Its impression (Ho.kn09) appears on 25 bindings on manuscripts, 12 of which belong to the *"Antioch"* bindings (end of fifteenth - mid sixteenth century, see Boudalis, 2004, pp.69-94) and 13 to the *"Giglio"*group (1622-1655A.D., see App.I 6 and Boudalis 2004, pp.113-155). It appears on a further two *"Giglio"* bindings on printed books, S.Pr.183, dated 1613A.D. and S.Pr.3126, of an unknown date. We understand that the tool has remained at the monastery since the end of the fifteenth century

[5] personal communication with Mr.Patrick Storme, Metals conservator and lecturer at the Royal Academy of Antwerp Conservation School

[6] personal communication with Dr.Athanasios Velios, Objects Conservator and Research Fellow at Camberwell College of Arts, University of the Arts London

[7] A blank in this context is the unmarked piece of metal on which the tool maker will engrave a motif to make a finishing tool.

and was passed on from one binder to another, who used it in combinations with different tools.

"Antioch" bindings

S.A.84	S.269	S.290
S.306	S.413	S.561
S.806	S.918	S.975
S.977	S.1162	S.2044

"Giglio" bindings

S.A.61	S.A.325	S.72	S.391	S.520
S.573	S.747	S.750	S.1048	S.1099
S.1163	S.1390	S.423	S.Pr.183	S.Pr.3126

Table 2.1 - Manuscript bindings on which *Tool 2* is impressed

Four more finishing tools are often found impressed on bindings together with *Tool 1.* These are *Tool 5, 14, 15 and 19,* all of which are particularly characteristic of the *Giglio"* group (see App.I 6) but only *Tool 15* appears also on the *"Antioch"* bindings.

2.2.3 Tool 3

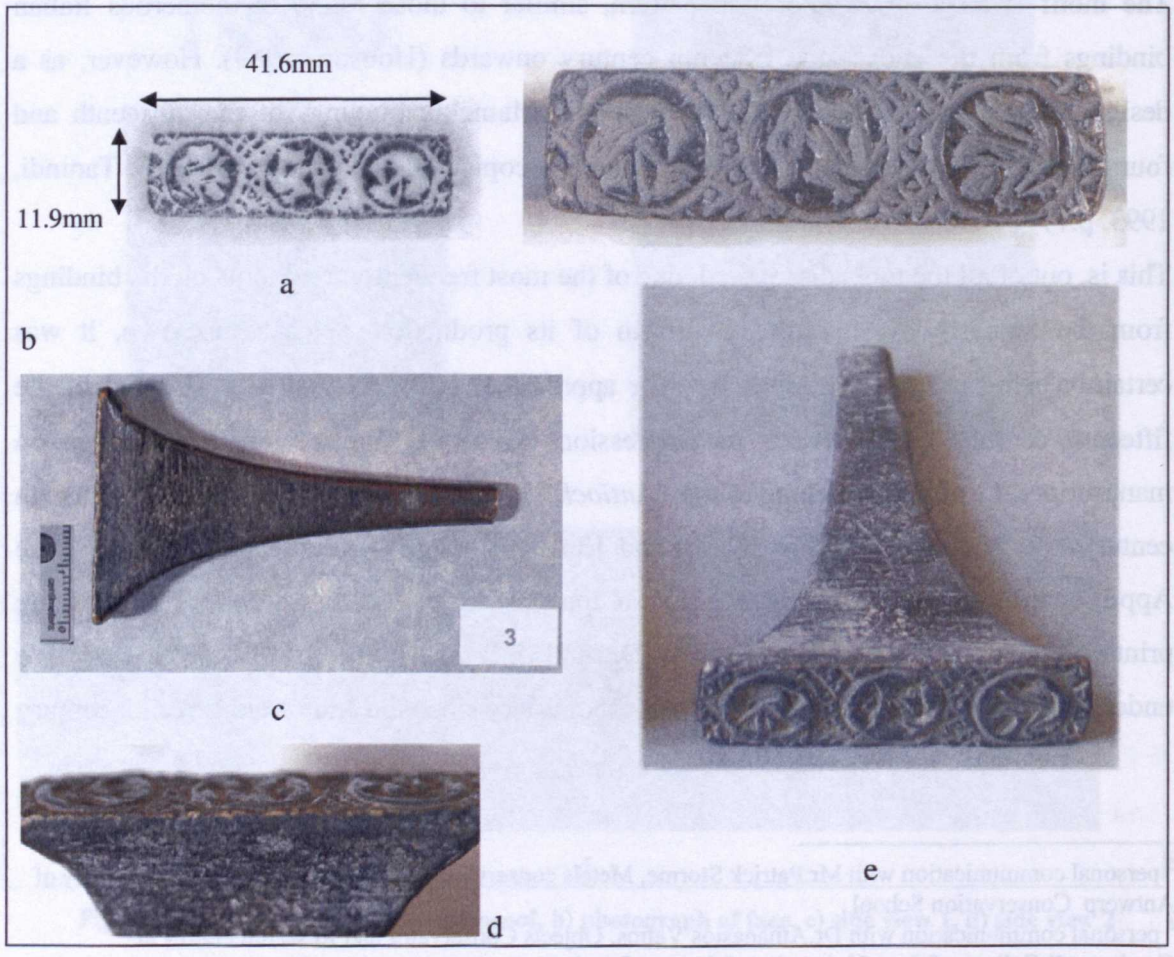


Figure 10 - Tool 3: a) true size ink proof, b) photograph of face, c) side view, d) detailed side view, e) perspective view

Tool 3 is an intaglio tool made of a copper alloy, possibly bronze of high copper content. It is an engraved tool that shows obvious marks of the use of a v-shaped graver (see fig.10b). File marks are also visible on its shank.

The shank of this tool and particularly the rear end of it, is revealing in many ways. It is shaped neither like *Tool 1*, where the very edge of the tool forms a slight head – an indication of the tool being hammered – nor like *Tool 2* which was clearly made to have a handle fit onto it. *Tool 3* has a shank gradually tapering towards its rear end. The very end of the shank is blunt and 6mm wide, which would not have been the obvious way to make a shank fit into a handle. Its resemblance to three more small hand tools (*Tool 5, 7 and 12*), which also seem not to have been made to have had a handle, may support the belief that these tools were hammered or hit with a mallet, or similar tool onto a leather surface, like *Tool 1*, rather than being hand-pressed.

The motif of the tool depicts three birds within three unlinked circles, surrounded by hatched lines and dots. The impression of this tool (Ha.oa01) appears on two bindings only, (S.1162, S.1899). The binding of S.1162 belongs to the *"Antioch"* group of bindings that dates between the end of the 15th and the mid-16th century, which therefore gives a date for this tool also.

Figure 11 - The two bindings on which *Tool 3* is impressed: S.1162 (left) and S.1899 (right)

2.2.4 *Tool 4*

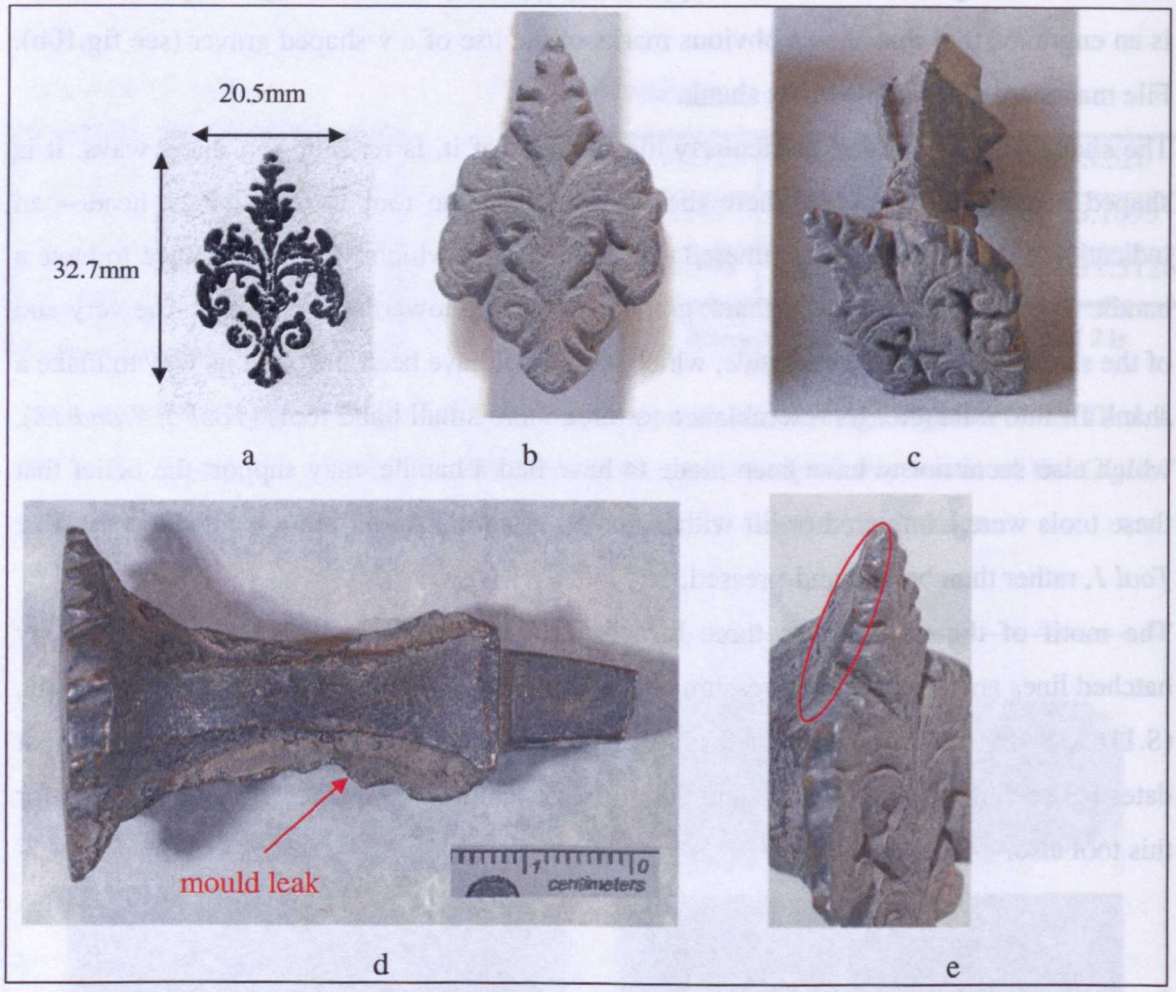


Figure 12 - Tool 4: a) true size ink proof, b) photograph of face, c) perspective view, d) side view, e) detail of a line that must be a joint between the face and the shank

Tool 4 is a copper alloy relief tool. This tool has clear marks of a casting process. Metal must have leaked through gaps in the mould at the joints of its two halves and as a result we can see two thin projections of metal formed on opposite sides of the shank (fig.12d). The face of the tool however shows a few, very faint but clear, marks of a hand-finishing process, either made by an engraving tool or a chisel. Given the depth of some holes and areas of the relief and the way that removed metal almost curls underneath the face of the tool, it appears that chiselling is the most likely method used. Chiselling partly pushes metal into the body of the tool, and allows a deep relief to be created, while engraving with a graver or a dry point removes metal sideways and is more superficial. The holes on the face of this tool may have been difficult to achieve with a graver. However, a similar effect

to chiselling could have been achieved with the use of counter-punches, although we have no evidence up to now of counter-punches being used for making finishing tools in the same way as they were used to make typecutters' punches.

Another possibility regarding the manufacturing process of this tool is that it might have been made in two separate parts. The shank might have been cast as described above as one piece and the face as a separate piece. The two parts would then be joined together, a process familiar to tool makers and metal workers and known as "silver-soldering" or plain "soldering" (Conroy 2002, p.xxiii). Although there is neither clear proof that this process was used, nor that it is a technique familiar to seventeenth century (see below) tool makers, there are some details which point towards it. The face of the tool is slightly lighter in colour than the shank, and in some places the face looks different from the shank. Moreover, the projection of the shank beyond the engraved face creates a horizontal shoulder, which appears to be a joining line between the face and the shank (fig.9e).

The edge of the shank, which is partly broken off, bears clear signs of the fact that the tool was made to fit into a handle, which unfortunately has not survived.

Impressions from this tool (Hf.st31) have been found on six Greek-manuscript bindings (S.377, S.992, S.1054, S.1108, S.1417, S.1931), three of which belong to Group 13 (S.377 and S.1417) and date from around 1665. As we do not know the dates of the other three bindings, 1665 should be taken as the date of the last-known use of this tool.

Figure 13 - The bindings of S.377 (left) and S.1108 (right) on which *Tool 4* is impressed, are clearly of a different bookbinding style and made by different binders.

2.2.5 *Tool 5*

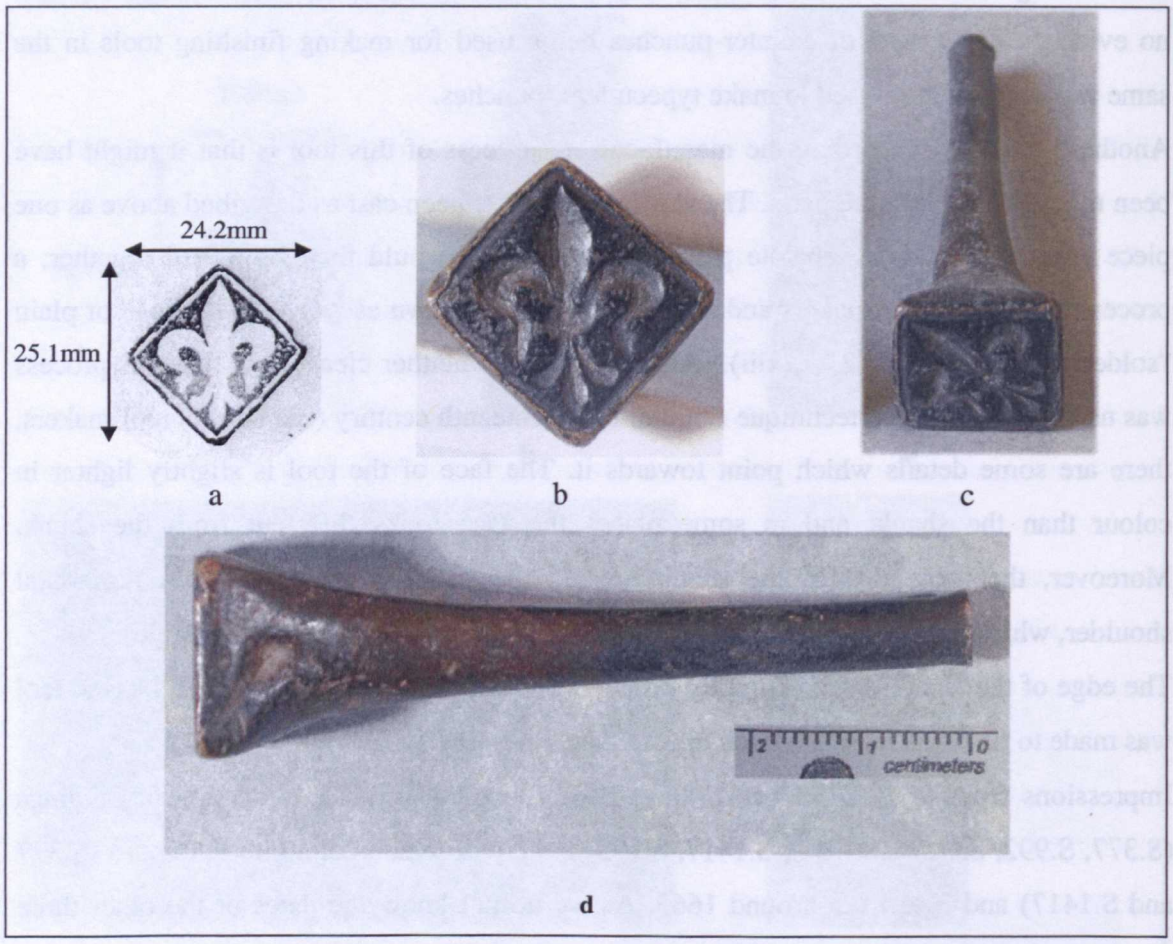


Fig. 14 - Tool 5: a) actual size ink proof, b) photograph of face, c) perspective view, d) side view

Tool 5 is a copper alloy intaglio tool. The design of the fleur-de-lis on the face of the tool is hand-engraved, and very deeply incised into the metal. The black colour on the face of the tool is particularly interesting as well as puzzling. It appears as a solid layer of paint, set firmly on the surface of the tool, and it is difficult to ascertain what may have caused this. One possible explanation may be that it is the result of the blackening effect of stable copper oxidation, or the solid black layer formed when cuprite is exposed to high temperatures, similar to what we saw on *Tool 2*. It is however localised only on the face of the tool, which is not easily justifiable, unless the tool was heated face-down over a source of heat. The second possibility is that the black layer is ingrained soot, which remained on the face of the tool after heating the tool over a fire repeatedly. Soot has the characteristic of embedding into a surface and it can then be difficult to remove it by simple mechanical

methods. Microscopic examinations would be necessary at this point, to confirm if the black layer is indeed soot and thus to be able to verify if the tool was heated prior to tooling.

The shank of this tool, offers some additional, yet contradictory evidence. It is shaped in a similar manner to the shank of *Tool 3,* with a blunt and wide end implying perhaps that it did not carry a handle. Blow-marks on the end indicate that it was indeed hammered rather than being impressed by hand. At this end it is observed that the engraved shapes on this tool are particularly deep, which would be hard to impress fully on leather, yet the impressions of this tool on several bindings (see below) appear to be very deep. Great force would certainly need to be applied in order to get the full depth of the tool impressed in a leather cover, but this could be achieved more easily by hammering. However, the combination of heating a tool and hammering it would seem excessive for tooling on leather bindings and exactly how this tool was used, whether by hand as a heated tool or cold as a hammered tool, or heated and hammered, remains unclear.

The impression of this tool (Hf.fl01) is found on 46 manuscript bindings and has also been identified on the bindings of four printed books, most of which belong to the *"Giglio"* (c.1622-1655) group of bindings and two to the *"Antioch"* (end of the fifteenth century) group.

"Antioch"
S.1117
S.1162

"Giglio"					
S.A.61	S.A.270	S.A.325	S.A.337	S.A.423	S.A.565
S.27	S.46	S.61	S.72	S.128	S.197
S.202	S.268	S.321	S.353	S.361	S.391
S.404	S.408	S.409	S.447	S.514	S.521
S.573	S.615	S.690	S.750	S.763	S.804
S.939	S.1048	S.1083	S.1099	S.1159	S.1163
S.1171	S.1178	S.1390	S.1755	S.1787	S.1832
S.1921	S.1976	S.Pr.24	S.Pr.183	S.Pr.193	S.Pr.3126

Table 2.2 Bindings bearing the impression of *Tool 5* from a) *"Antioch"* bindings and b) *"Giglio"* bindings

Based on the dating evidence for the bindings in these two groups, it is possible to give an approximate date to this tool and observe the time span of its use. The date range is similar

to that suggested for *Tool 2*, that is, between the end of the fifteenth century and 1655, showing that the tool was used for a period of c.150 years.

One minor flaw that appears on the face of the tool has provided substantial help in dating a number of these bindings. The left corner of the tool has been slightly damaged (see fig.14b), showing also on its smoke proof (fig.14a). It was observed that this flaw was incorporated only on a small number of impressions on bindings, which is definitive proof that these bindings were made after those without the flaw.

Before the damage						After the damage
S.A.61	S.A.270	S.A.325	S.A.337	S.A.423	S.A.565	S.46
S.27	S.61	S.72	S.128	S.197	S.202	S.615
S.268	S.321	S.353	S.361	S.391	S.404	S.690 (dated 1647)
S.408	S.409	S.447	S.514	S.521	S.573	S.1832
S.750	S.763	S.804	S.939	S.1048	S.1083	S.1921
S.1099	S.1159	S.1117	S.1162	S.1163	S.1171	S.1976 (dated 1655)
S.1178	S.1390	S.1755	S.1787			

Table 2.3 Bindings tooled with *Tool 5* before and after the tool was damaged

The earliest date recorded from a binding tooled after *Tool 5* was damaged is 1647A.D. from S.690 (App. I 6 and fig.15). We can safely assume therefore that all the bindings decorated with this tool before it was damaged would have been made before 1647.

Figure 15 - Detail of the binding of S.690 from the *"Giglio"* group of bindings, with impressions from the damaged *Tool 5*, as well as of *Tool 15*.

2.2.6 *Tool 6*

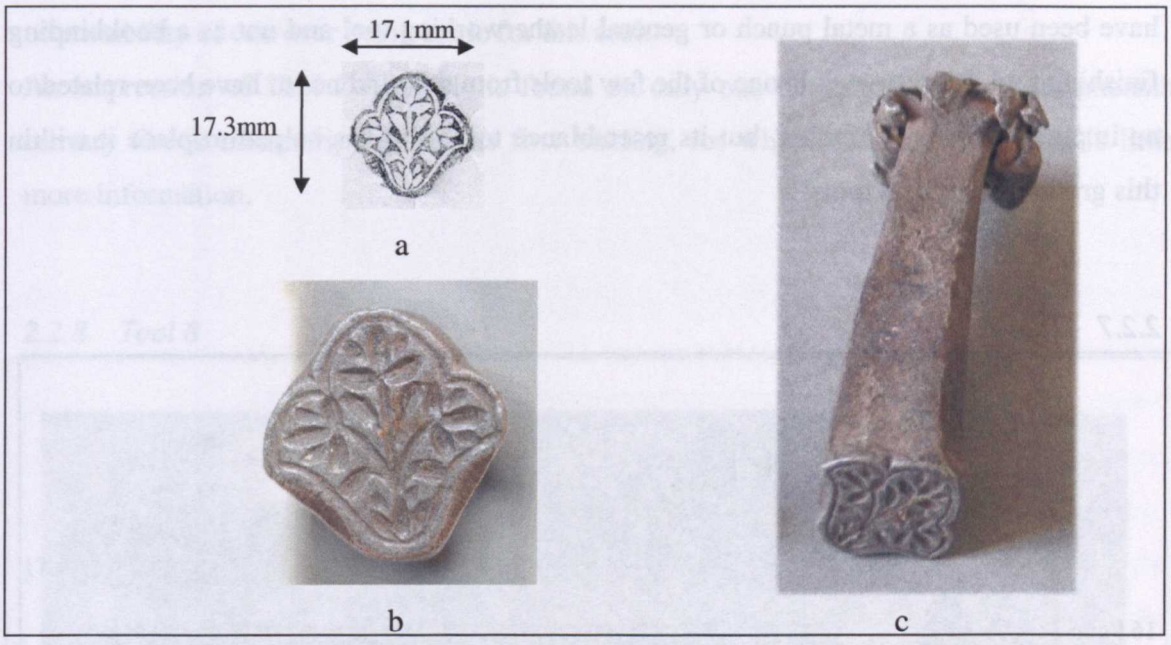


Figure 16. Tool 6: a) actual size ink proof, b) photograph of face, c) general view

Tool 6 is an intaglio forged iron tool. The shank of this tool is a solid and roughly shaped piece of metal, slightly similar to *Tool 1*, which shows clear marks of cracks and lines made from the folded pieces of metal that were forged together. The floral design on the face of the tool was hand-engraved and possibly chiselled out[8] which has left some sharp points in the design. File marks are also prominent at the sides of the face. The reddish colour throughout the body and the face of the tool is rust from the corrosion of iron, although it does not seem to be at an advanced stage.

The rear end of the tool is forged together with an additional piece of metal that has been hammered fiercely on the end and bent. It resembles heads of chisels (fig.17) more than those on the shanks of finishing tools and is clear evidence that the tool was impressed by hammering and not by hand-pressure.

Figure 17 - Chisel uncovered along with the finishing tools that bears a head similar to that of *Tool 6*

[8] personal communication with Roy Petit, professional tool cutter from *P&S Engraving*

At a first glance, the shank and the chisel-head of the tool may imply that the tool must have been used as a metal punch or general leatherworking tool and not as a bookbinding finishing tool. Moreover, it is one of the few tools from this find not to have been related to an impression on any binding, but its resemblance to *Tool 8* has helped to place it within this group of finishing tools.

2.2.7 Tool 7

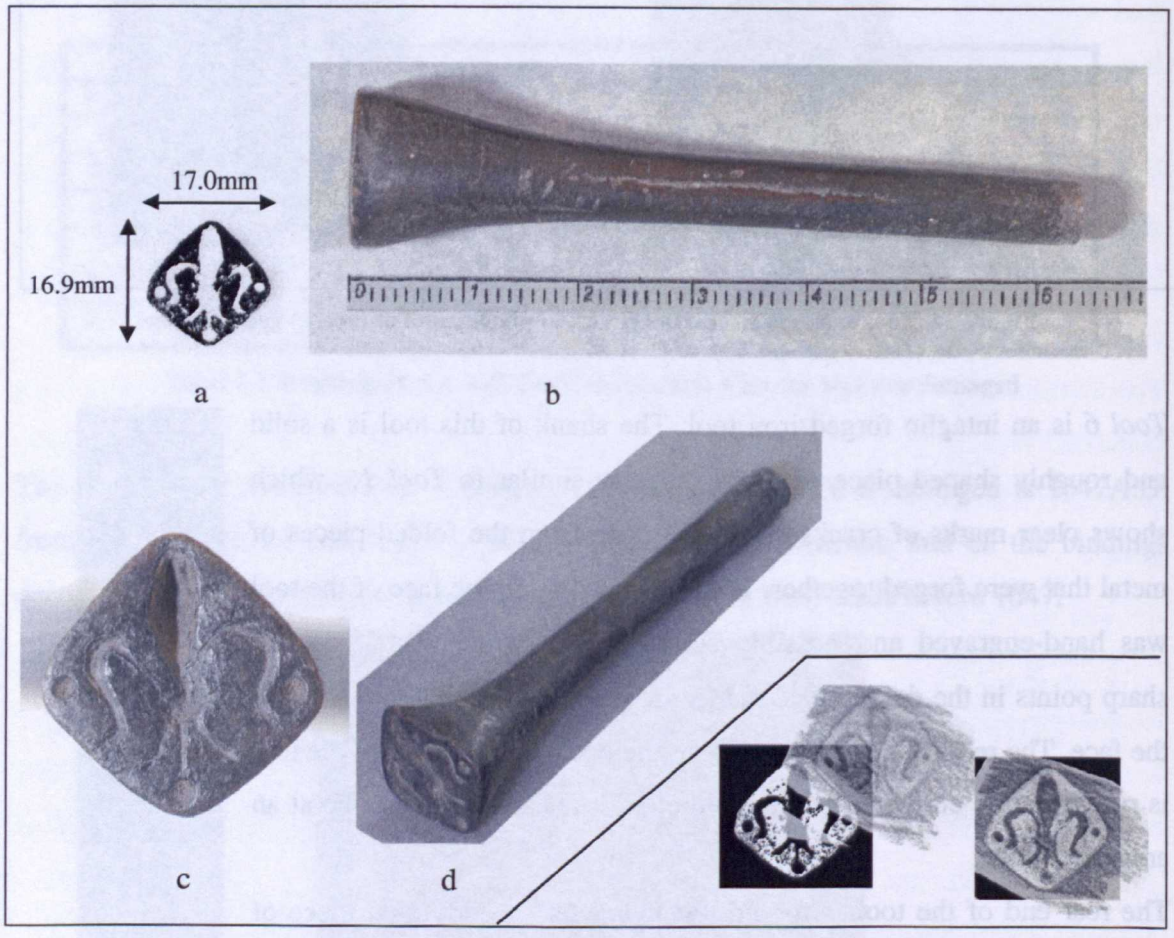


Figure 18 - Tool 7: a) actual size smoke proof, b) side view, c) photograph of face, d) general view, e) superimposing a rubbing from an impression on S.1827 over the tools' smoke proof (inverted)

Tool 7 is an intaglio engraved tool, probably made of a copper alloy. It shares many characteristics with *Tool 5* in addition to the engraved fleur-de-lis motif, such as the shape of the shank, the depth of the engraving and the blunt rear end of the shank. As discussed for *Tool 3* and *5*, it is likely that this tool was impressed on leather by being hit with a

hammer or a mallet and not by hand-pressure, as indicated by the lack of a wooden handle or possibility of one ever being made for this tool.

An impression of *Tool 7* (Hf.fl31) is found on only one binding, S.1827, a seventeenth century Greek manuscript still in its first binding, for which unfortunately there is little more information.

2.2.8 *Tool 8*

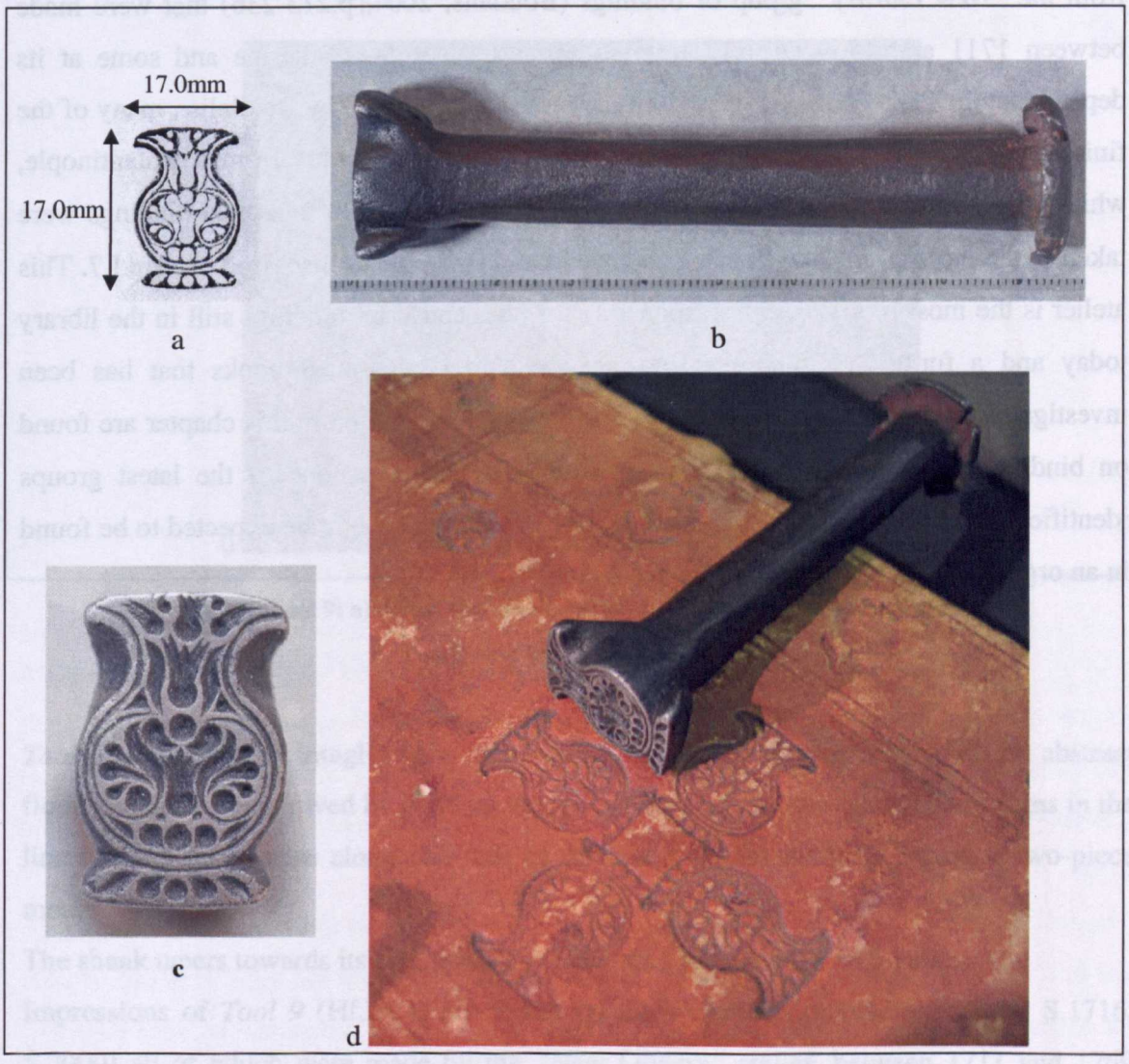


Figure 19 - Tool 8: a) actual size smoke proof, b) side view, c) photograph of face, d) *Tool 18* next to its impression on the binding of S.1338

Tool 8 is an intaglio wrought iron tool with a stylised floral motif in a vase. The tool is forged into one solid piece of iron that shows clear hammer marks on the shank and hand engraving on the face of the tool.

The shank is imperfectly cylindrical and does not taper towards the end. Instead a head similar to that of *Tool 6* is forged onto its end, an indisputable sign of its being struck by blows from a hammer, mallet or other similar instrument.

An impression of this tool (Ho.ao04) is found on 3 bindings (S.1338, S.1605 and S.1916) from the *"New Library"* group of bindings (Boudalis, 2004, p.213-236) that were made between 1711 and 1769 (App.I 7) at the Monastery of St. Catherine and some at its dependency in Constantinople. Based on the evidence discussed by Boudalis , many of the finishing tools used on *"New Library"* bindings may have come from Constantinople, while many were also used on bindings made there, before both tools and bindings were taken to the monastery in Sinai. This however is questionable as discussed in App.I 7. This atelier is the most prolific of all, responsible for 68 manuscript bindings still in the library today and a further 25 bindings from the collection of printed books that has been investigated so far[9]. The majority of the finishing tools presented in this chapter are found on bindings in this group, which might be expected as it is one of the latest groups identified. It also demonstrates the great variety of tools that might be expected to be found in an organised and highly productive workshop.

[9] The above information on the printed books comes from the survey conducted as part of the St.Catherine's Library Conservation Project, led by Prof. Nicholas Pickwoad and the *Ligatus Research Unit*, Camberwell College of Art, University of the Arts London. By the time this thesis was being written the survey teams had completed the examination and documentation of most of the printed books of the library which dated prior to 1600, for which photographic and documentary material was made available to me to examine.

2.2.9 *Tool 9*

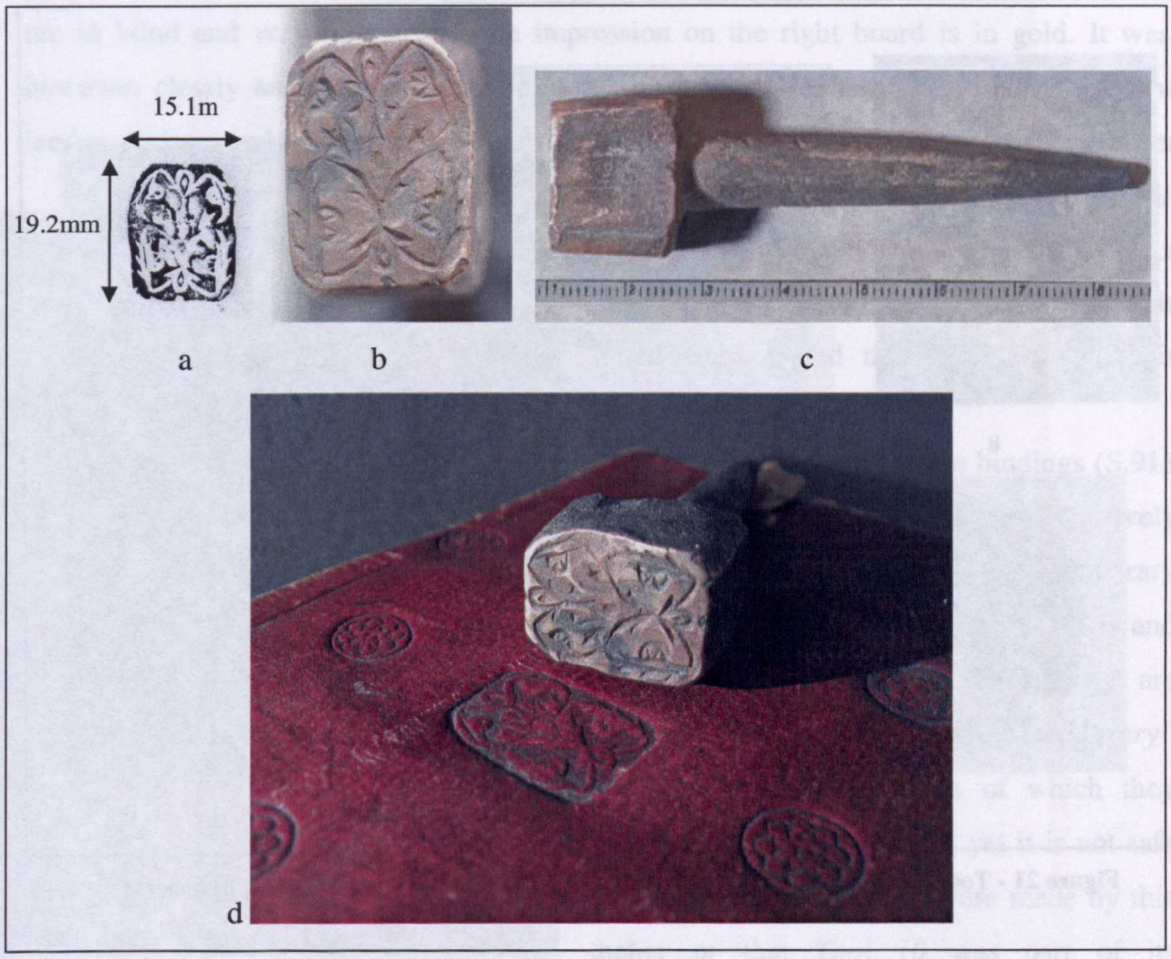


Figure 20 - Tool 9: a) actual size smoke proof, b) photograph of face, c), side view d) Tool 9 next to its impression on S.51

Tool 9 is engraved in intaglio on a copper alloy metal. The impression depicts an abstract floral design. It is engraved by hand on the face of the tool, yet the blank shows signs in the line running lengthwise along one side of the shank of having been cast in a two-piece mould.

The shank tapers towards its end, possibly to accommodate a wooden handle.

Impressions of *Tool 9* (Hf.fe04) are found on three manuscript bindings (S.51, S.1716, S.2000) all of which were made by the *"New Library"* atelier, between 1711 and 1769 most probably at the Monastery of St. Catherine. S.2000 is an Islamic-style binding with a foredge flap, on a Greek manuscript, which could mean that the binding was made within an area of Islamic influence, or by a binder trained in the Islamic bookbinding tradition.

2.2.10 Tool 10

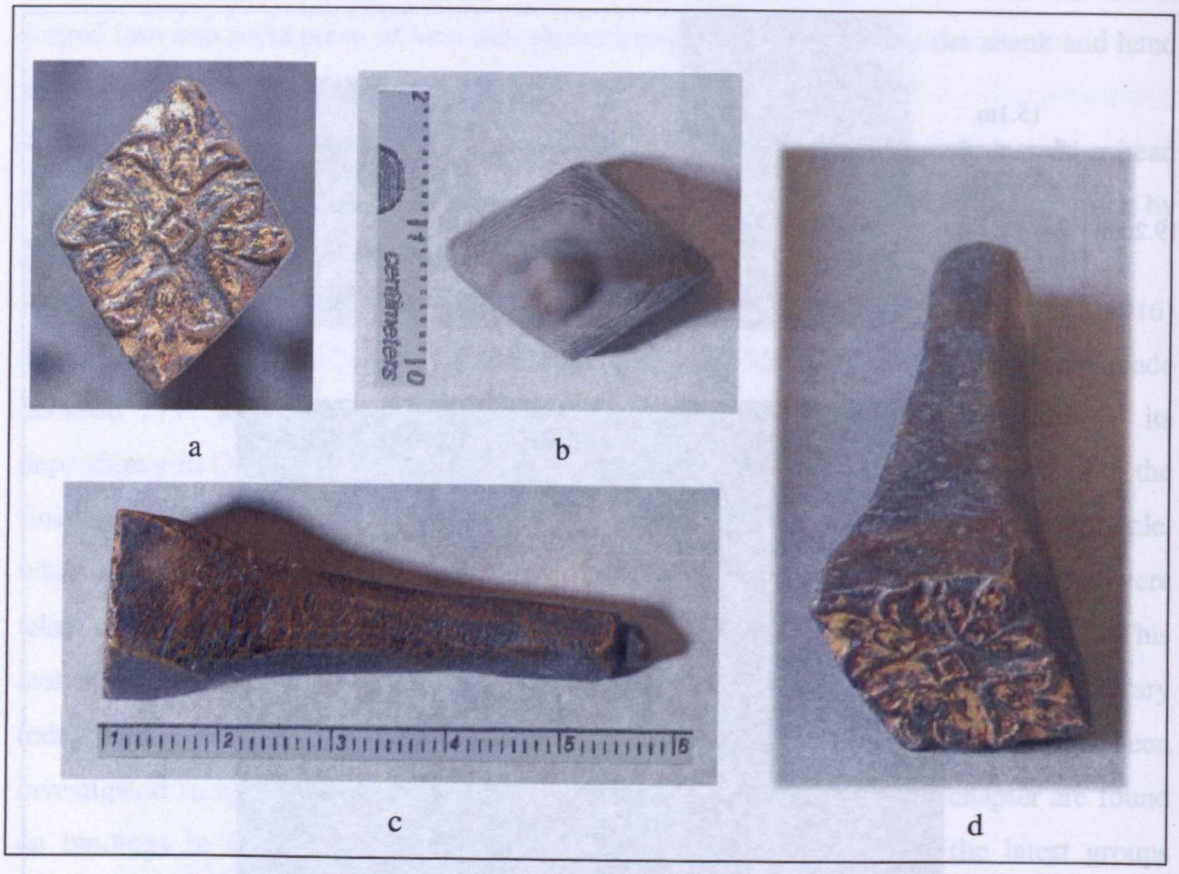


Figure 21 - Tool 10: a) photograph of face, b) view of the rear side, c) side view, d) general view

Tool 10 is a relief copper alloy small hand tool[10]. The floral motif on the face has been hand engraved, but the blank must have been produced by casting. Fine file marks are visible at the shank of the tool. The rear end of the shank tapers gradually, at the tip of which there is a narrower tang which is broken. This tang indicates that a handle was made to fit onto the tool.

The tool was made to be used heated and impressed by hand and there is no better evidence for this than the remnants of gold leaf which can still be seen on the tool. This also shows an experimental or inexperienced application of gold tooling, where the balance between glair, the quantity of gold and the heat of the tool has not been maintained consistently. Evidence of the unsuccessful attempts at gold tooling which left the gold leaf on the tool

[10] It was not possible to obtain a true size smoke or ink proof due to the gold leaf that is still attached to the face of the tool, which would have been damaged, thus removing important evidence regarding the tools' use.

still survives. *Tool 10* was impressed (Hf.fe09) 12 times on S.1008 (fig.19), 11 of which are in blind and very faint while one impression on the right board is in gold. It was, however, clearly an unsuccessful attempt, as the gold has adhered only partially to the leather surface, and smudged excessively in those areas. We could suppose that the binder left a faint blind impression with this tool in the 12 areas he intended to tool in gold prior to laying on the gold leaf, but following this failed attempt, did not carry on with this process.

Figure - 22 The right board of the binding of S.1008 shows the attempted gold tooling with *Tool 10* at the top left corner.

Tool 10 appears on two more bindings (S.913 and S.1632) both of which are exclusively blind-tooled. The bindings are contemporary with their textblocks, which are signed and dated between 1694 and 1709. They are slightly earlier in date than the *"New Library"* atelier, with some bindings of which they have other tools in common, yet it is not safe to suggest either that they were made by this atelier or that *Tool 10* was part of its collection of tools. Nevertheless, we can, with some reservation, attribute the use of the tool to a binder working at the monastery.

2.2.11 Tool 11

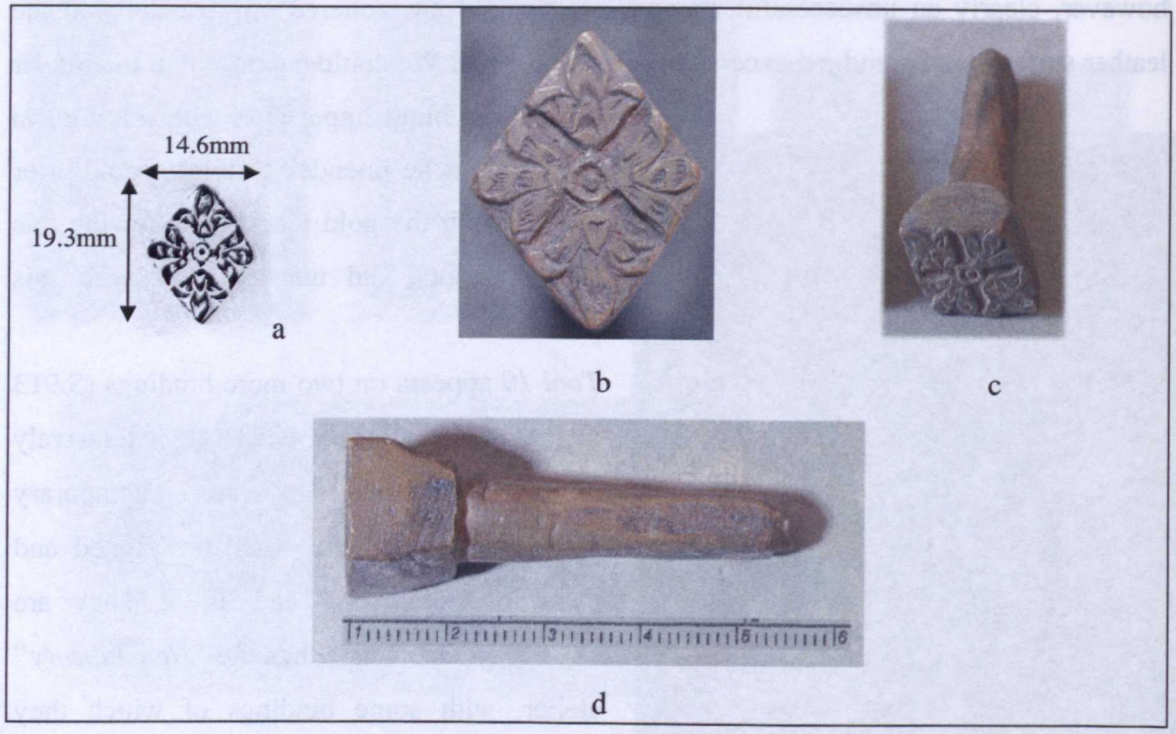


Figure 23 - Tool 11: a) actual size smoke proof, b) photograph of face, c) general view, d) side view

Tool 11 is in many respects similar to *Tool 10*. It is a relief copper alloy tool, possibly brass, hand engraved on a large table with a similar floral motif. Its shank is nearly cylindrical. The tang appears to have broken, as in *Tool 10*, but was most probably fitted with a handle. This suggests it was a tool impressed by hand pressure and not hammered. Unfortunately, no bindings have survived bearing impressions of this tool. Why two nearly identical tools, which were most probably made by the same toolmaker, were obtained by whichever atelier procured them, remains an open question.

2.2.12 Tool 12

Figure 24 - Tool 12: a) actual size smoke proof, b) photograph of face, c) general view, d) side view

This is an intaglio tool engraved on a copper alloy, probably of high copper content. There is clearly visible hand engraving for the design of the tool, which depicts a dragon with a curled tail, facing backwards. The shank is shaped in one continuous piece that tapers gradually towards the end, but the end is not sufficiently pointed to confirm that a handle would have been fitted onto it. On the contrary its blunt rear edge appears to have been struck with a heavy tool and it is possible that this tool was hammered rather than impressed by hand.

Figure 25 - S.663 is the only St.Catherine's binding with an impression of Ha.dr14

The tool appears (Ha.dr14) only on one binding from the monastery's manuscript collection, S.663 (fig.25), which was probably written at Sinai in 1520 (Galavaris 2000, p.446) and has kept its first

binding. I have identified another binding with an impression of *Tool 12* in the Bodleian library. Barocci 141 is a fourteenth century manuscript written by the Cretan *metropolite* Elias now in a later binding which must have been made by 1532, as indicated by a dated note on its endleaves (App.I 22). The tool may therefore be dated to circa 1520-1535. A very similar, yet not identical tool to *Tool 12* was recorded by Boudalis (2004, p.262) on a 1538 binding from the Greek monastery of Iviron, Mount Athos, which suggests that this was probably not an uncommon motif in the first half of the sixteenth century.

2.2.13 Tool 13

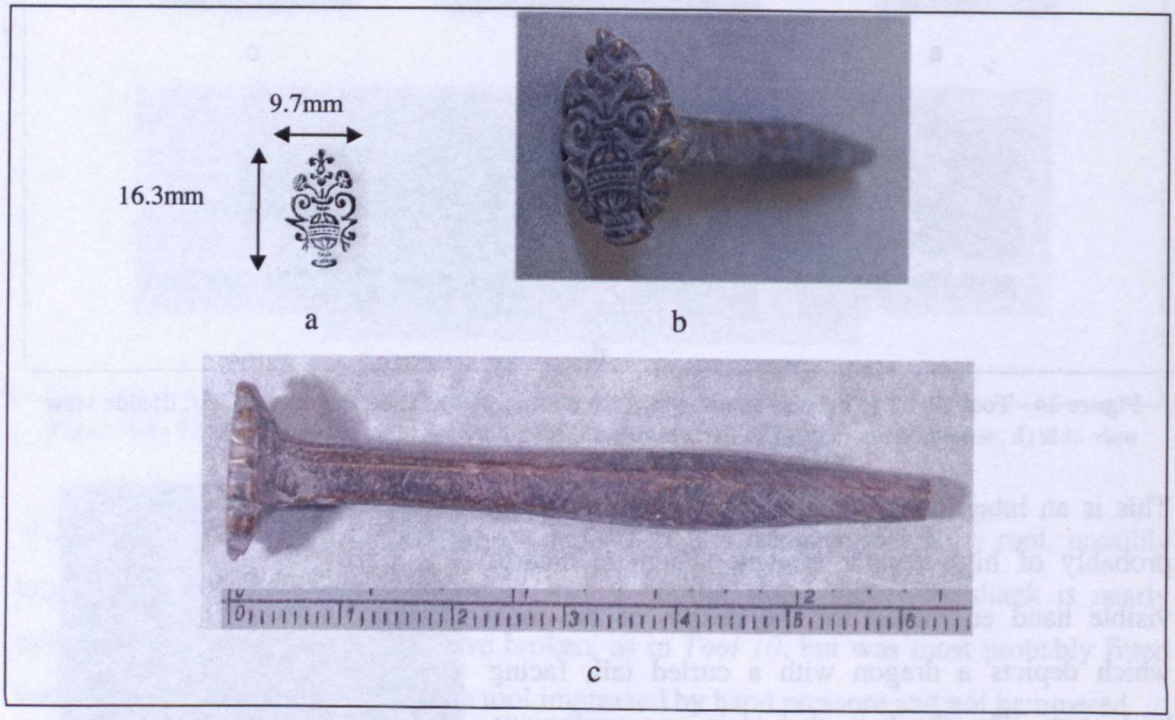


Figure 26 - Tool 13: a) actual size smoke proof, b) photograph of face, c) side view

Tool 13 is a relief hand-engraved tool on a copper alloy. The motif is a stylised flower in a vase of western inspiration that was clearly hand-engraved. The shank of the tool is long (62,5mm) and square but bulges towards the rear end, possibly in order to wedge a handle onto it. The tool has been impressed in blind (Ho.ao40) on the binding of **S.473** only. This may be the first binding on the sixteenth century textblock but its exact date cannot be confirmed. Nevertheless, the motif of *Tool 13* appears later as it is often found on western bindings of c.1640.[11]

[11] Personal communication with Mirjam Foot, 1.2.10

2.2.14 Tool 14

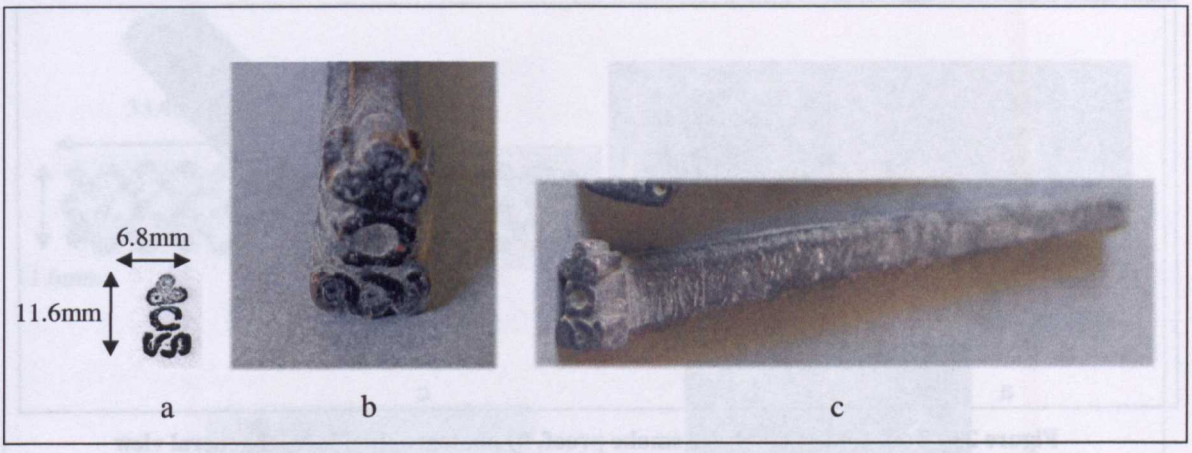


Figure 27 - Tool 14: a) actual size smoke proof, b) photograph of face. c) general view

Tool 14 is a relief tool engraved on the face of a long copper alloy rod. The motif, which is hand engraved, is an abstract ornament that closely resembles an architectural finial.
Its shank is formed as a straight uniform piece. It is not clear from the end of the tool whether it was used with a handle. It is also unclear whether the tool was impressed by hand or hammered.

Impressions of this tool are recorded on 19 bindings, six of which are from the *"Klimis"* group (App.I 11- dated c.1589 – 1597), 11 are from the *"Giglio"* group (App.I 6 - dated 1622-1655) and two others, **S.A.452** and **S.1648** (Table 2.4) that are neither dated nor related to any group of bindings. From the dates and provenance of the grouped bindings we can assume that the tool was made sometime before 1589 and remained at the monastery from that time.

"Klimis" bindings		"Giglio" bindings			Random
S.A.76	S.296	S.27	S.46	S.197	S.A.452
S.367	S.502	S.404	S.408	S.521	S.1648
S.604	S.628	S.615	S.690	S.747	
		S.763	S.1159		

Table 2.4 - List of the *"Klimis", "Giglio"* and other bindings that have been tooled with *Tool 14*

2.2.15 Tool 15

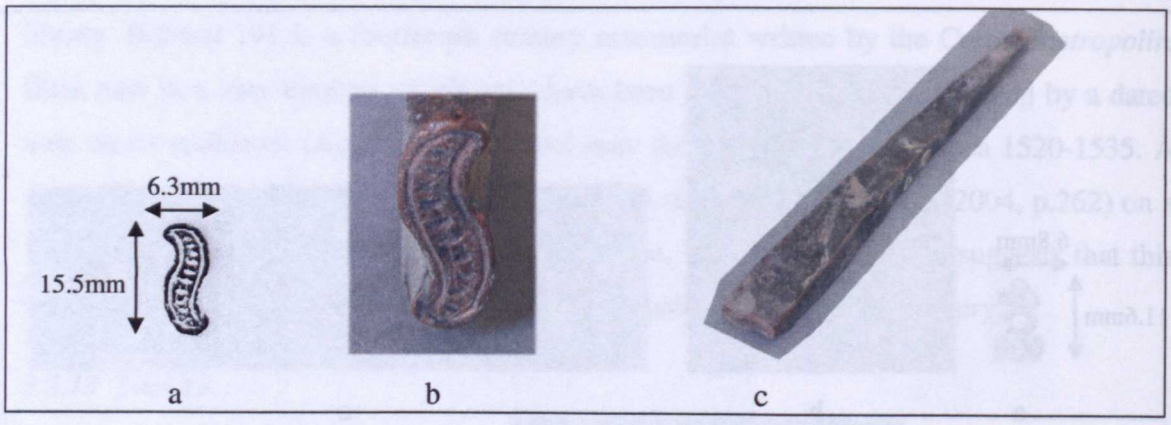


Figure 28 - Tool 15: a) actual size smoke proof, b) photograph of face, c) general view

Tool 15 is a copper alloy tool. The white hue of the shank indicates the presence of another component which is yet to be identified. It is a small, intaglio hand-tool, hand-engraved with an abstract motif which has previously been described as a *chenille*[12] (Regemorter, 1967, p.138).

The shank of the tool suggests that this is another tool that was impressed by a hammering action and not by being heated and hand-pressed.

It is one of the most frequently encountered tools on bindings from the monastery (Ho.ao55, fig.15), and appears on a total of 44 manuscript bindings and a further three bindings on early printed books (**S.Pr.24, S.Pr.183, S.Pr.3126**). It shares its history with *Tool 5* and they frequently appear together. Most of the 47 bindings on which this tool was used belong to the *"Giglio"* group, dating between 1622 and 1655; only two are from the *"Antioch"* group dating from the late fifteenth to mid-sixteenth century (**S.324** is dated at 1543) which suggests that the tool was in use for at least 110 years.

"Antioch"	"Giglio"										Printed
S.324	S.A.270	S.A.325	S.A.337	S.A.423	S.27	S.46	S.61	S.72	S.128	S.197	S.Pr.24
S.14	S.268	S.324	S.361	S.391	S.404	S.408	S.409	S.447	S.514	S.521	S.Pr.183
	S.573	S.585	S.615	S.690	S.747	S.750	S.763	S.804	S.939	S.951	S.Pr.3126
	S.1048	S.1083	S.1159	S.1163	S.1171	S.1178	S.1390	S.1832	S.1921	S.1976	
	S.2002	S.2247									

Table 2. 5 - List of the *"Antioch","Giglio"* and printed books bindings that have been tooled with *Tool 15*

[12] *Chenille* is the French word for caterpillar

2.2.16 Tool 16

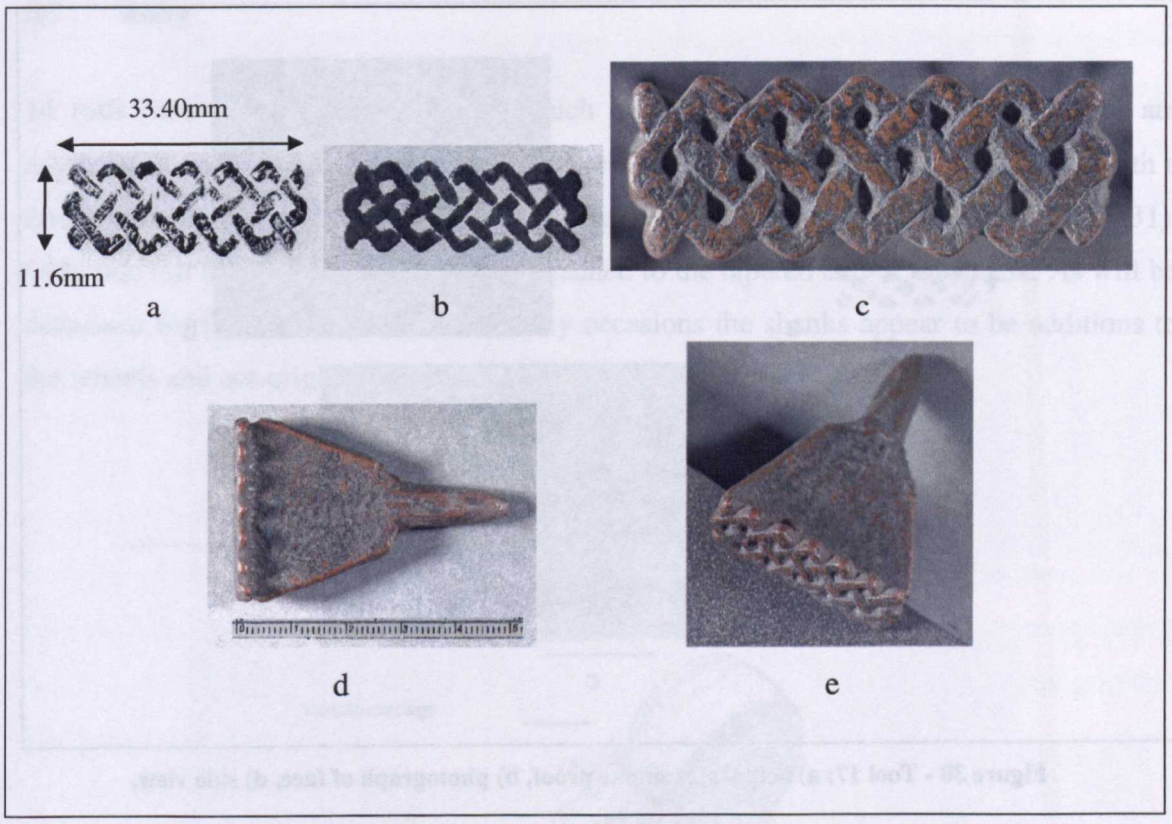


Figure 29 - Tool 16: a) actual size smoke proof, b) actual size ink proof, c) photograph of face, d) side view, e) perspective view

The relief interlace motif of this tool is hand engraved on a copper alloy. This tool was most probably made in two separate pieces, one for the table and one for the shank, which were then brazed together.

The shank might have been produced by a casting process, but the table has unmistakable marks of hand-work. The tang of the shank is narrow and pointed, clearly made to have a handle fitted onto it.

No impressions of this tool are found on any bindings and the tool cannot therefore be dated, nor its provenance identified.

2.2.17 Tool 17

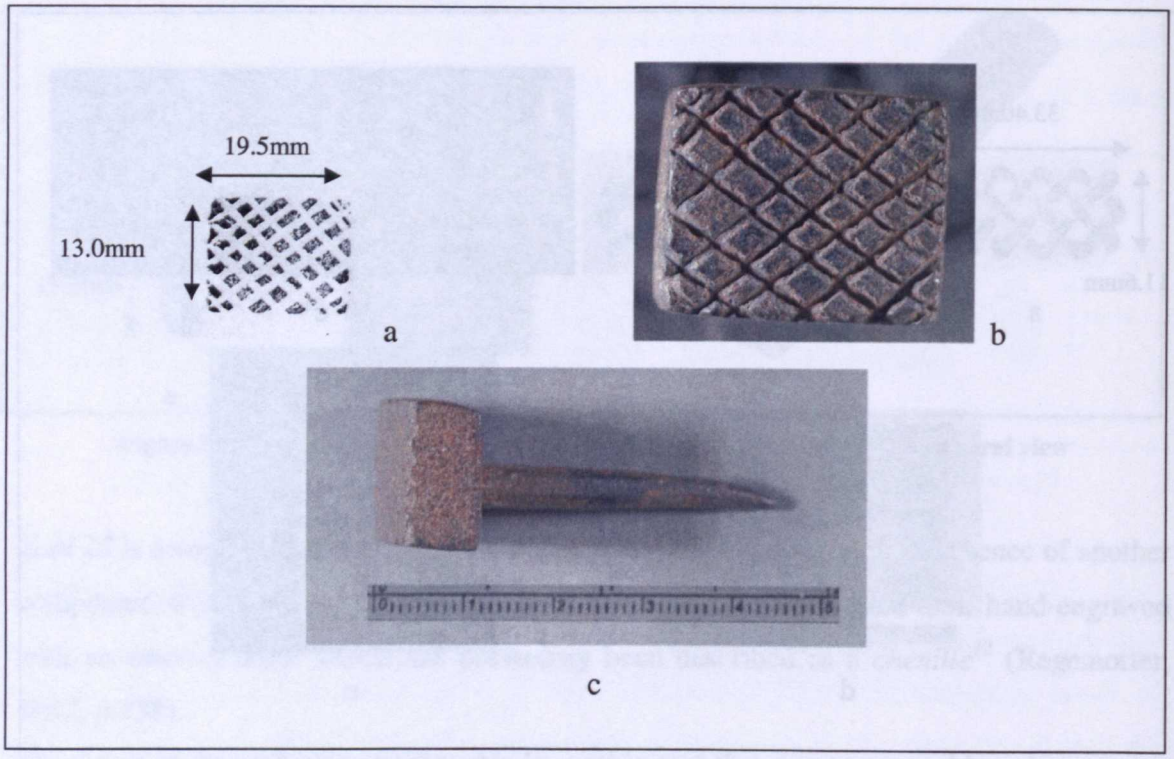


Figure 30 - Tool 17: a) actual size smoke proof, b) photograph of face, d) side view,

Tool 17 is a relief small hand tool that has a cross-hatched motif. The tool is made of copper alloy, engraved very deeply to produce the hatched lines. Tool marks are evident on its face that suggest it was hand-engraved.

The shank of the tool is relatively short, measuring 35mm. It tapers towards a sharp point at its end, indicating clearly that a handle would have been fitted onto the tool.

The tool (Hg.og01) has been found impressed on three bindings, **S.334, S.336** *(Group 36)* and possibly on **S.825**, but the quality of the impressions on the latter is very poor. From the approximate dates of the above bindings and particularly that of **S.336** (its manuscript dates from 1647A.D. while it appears to be still in its first binding) it is estimated that this tool was used around the mid-seventeenth century.

2.3 Rolls

14 rolls have been recovered, all of which are made of a copper alloy. Only four are engraved in intaglio. 11 out of the 14 rolls were found to have tapered metal shanks with a double-carriage[13] at one end to hold the wheel and a tapered point at the other (fig.31). Only one roll still has a wooden handle attached to the tapered end of the shank. As will be discussed for the individual rolls, on many occasions the shanks appear to be additions to the wheels and not original to them.

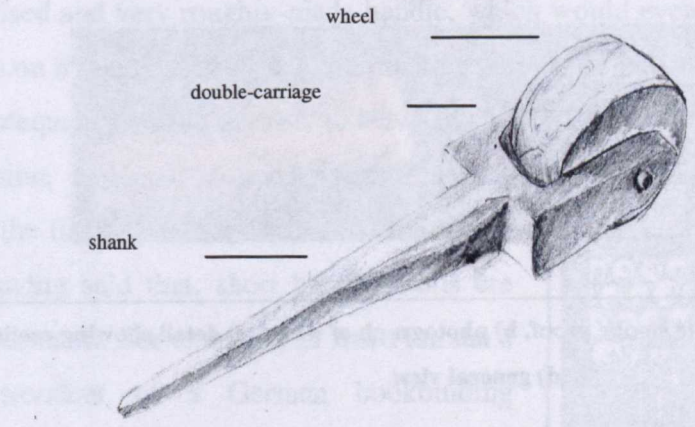


Figure 31 - The parts of a characteristic roll from the finds

[13] The term *"forked-shank"* can also be used to describe a *"Double-carriage"*

2.3.1 Tool 18

Figure 32 - Tool 18: a) actual size smoke proof, b) photograph of wheel, c) detail showing casting holes, d) general view

Tool 18 is a relief copper alloy roll, possibly bronze judging by its reddish colour. It bears a motif of floral branches and leaves. There are casting holes visible in details of the tool (fig.32c) which indicate that the wheel was cast. However, it would be hard to get a copper alloy to fill very fine lines in a mould, unless it was mixed with high portions of a softer metal such as lead or tin, which would make it very soft and possibly unsuitable as a finishing tool.[14] It is more probable that the refined design on the face of this wheel was not

[14] Typefaces have traditionally been cast in a metal mould. The consistencies and recipes of the alloys mixed for the types varied greatly according to each metalworker, but usually high percentages of tin and even lead were blended together with copper. However typefaces, which are impressed against a soft damp paper require less resilience to wear due to high pressure than finishing tools, and therefore used alloys that allowed them to be cast without the need for further finishing.

produced by casting. Instead, casting must have been used to produce only a blank or a wheel with the motif partly shaped on its face, which was then engraved in detail by hand. Roll blanks were indeed cast during the nineteenth century (Docker, 1978, pl.5 after Conroy 2002) and it may be that this was common practice in previous centuries, something which this tool may help us to confirm.

The shank of the tool is not made from the same alloy nor by the same process as the wheel. It is a roughly shaped and probably a "home-made" forged iron double-carriage, with clear marks from hammering on the shank. There is not enough evidence to know whether it was originally provided with the wheel by its toolmaker or whether it is a later addition to it.

The same could be said for its handle. It is one of only two tools in this collection to have a wooden handle still attached to its tang, and both look very similar to one another. It is an improvised and very roughly-made handle, which would even seem too short compared to handles on modern rolls. In modern practice two hands are used to achieve a good grip and apply adequate pressure in order to leave a good impression, and it is a general rule that the longer the handle the easier it is to control the roll. Having said that, short handled rolls are not uncommon. For example, in Jost Amman's 1568 woodcut of a German bookbinding workshop (fig.33), we distinguish three rolls in the top right corner, which although they have very long shanks, their handles are relatively short, not unlike the handles found in this collection.

Figure 33 -Woodcut of a bookbinding workshop by Jost Amman (1568), showing three finishing rolls

An impression of *Tool 18* is recorded on the bindings of Greek manuscripts **S.256** (Group 12) and **S.1935**. Based on the approximate date of Group 12, this tool can be confirmed to have been in use at the beginning of the eighteenth century.

2.3.2 *Tool 19*

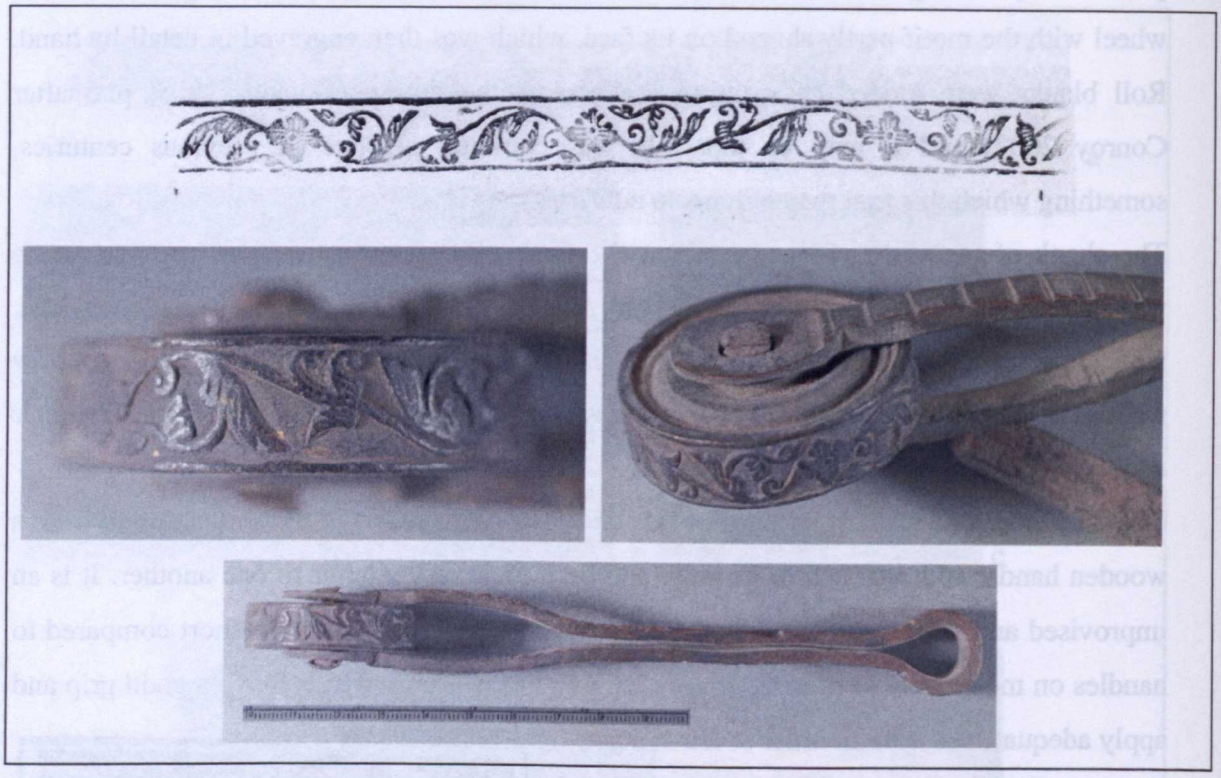


Figure 34 - Tool 19: a) actual size smoke proof, b) photograph of wheel, c) general view, d) side view

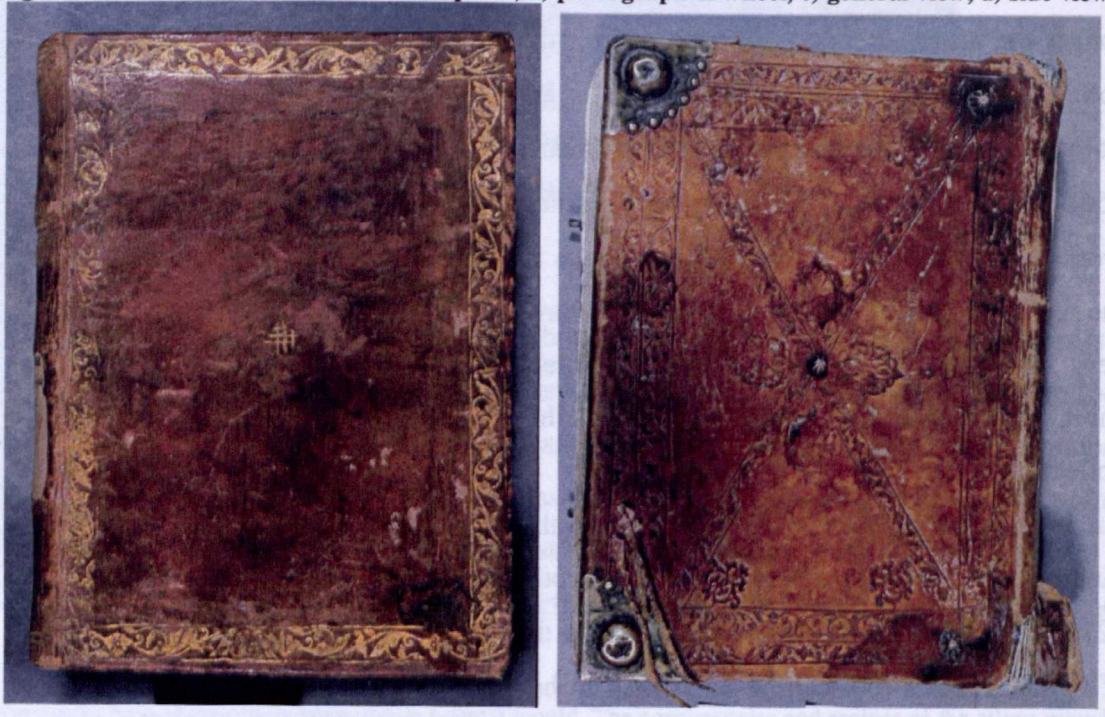


Figure 35 - The bindings of S.2109 (left) from the nineteenth century and S.788 (right) from the mid-seventeenth century, which have been tooled with *Tool 19*, are clearly of a different style and bookbinding tradition, made by two different binders approximately 200 years apart.

Tool 19 is a relief roll, probably made of copper alloy. The motif represents floral and leaf branches, engraved by hand, on the face of the wheel. The sides of the wheel are shaped as if they have been worked on a lathe. There are no visible casting marks, but casting should not be excluded as a possible technique used to produce the blank wheel.

The shank of this tool is unusual and resembles a pair of tongs more than it does a finishing tool shank. It is however a firm and practical device that facilitates the application and helps putting great force on the roll. Nevertheless, it would be difficult to heat the roll as the heat of the metal handle would make it impossible to use with bare hands, which is probably why we find only one binding tooled in gold with this roll. In the absence of comparable examples, we cannot know if this is an improvised solution to providing a shank for a roll or a type used often by Greek binders, nor, indeed, if it was the original shank made for this tool.

An impression of *Tool 19* (Rf.fw01) is recorded on 30 manuscript bindings, which date from circa 1604 (**S.1156**) to the nineteenth century (**S.2109**). 14 of these bindings are from the *"Giglio"* group, nine are from *Group 15* and 7 do not belong to any identified group:

"Giglio"				Group 15			Random bindings		
S.21	S.27	S.72	S.197	S.124	S.291	S.402	S.470-group 4	S.488	S.691
S.202	S.321	S.353	S.521	S.421	S.642	S.739	S.852	S.1914	S.2069
S.585	S.939	S.1156	S.1178	S.757	S.788	S.1045	S.2109		
S.1787	S.2229								

Table 2.6 - Bindings bearing an impression of *Tool 19*, are arranged according to the group of bindings they fall into.

All the impressions are tooled in blind apart from the much later binding of S.2109 which is gold-tooled, possibly as a result of which there are the traces of gold leaf still visible on the surface of the wheel.

Based on the dates of the manuscripts in these bindings, together with palaeographic investigations (see Boudalis, 2004 for *"Giglio"* and *"Cairo Metochion"* bindings and App.I 6 and App.I 7), we can trace the use of this tool over a period of approximately 200 years. It was most frequently used in the early seventeenth century, during the activity of the *"Giglio"* workshop and the subsequent or simultaneous activity of the workshop responsible for the bindings in *Group 15*. There are no other surviving bindings on which

this tool was used between then and the nineteenth-century binding, S.2109, and it would appear that it was left unused in between.

2.3.3 *Tool 20* + *Tool 22*

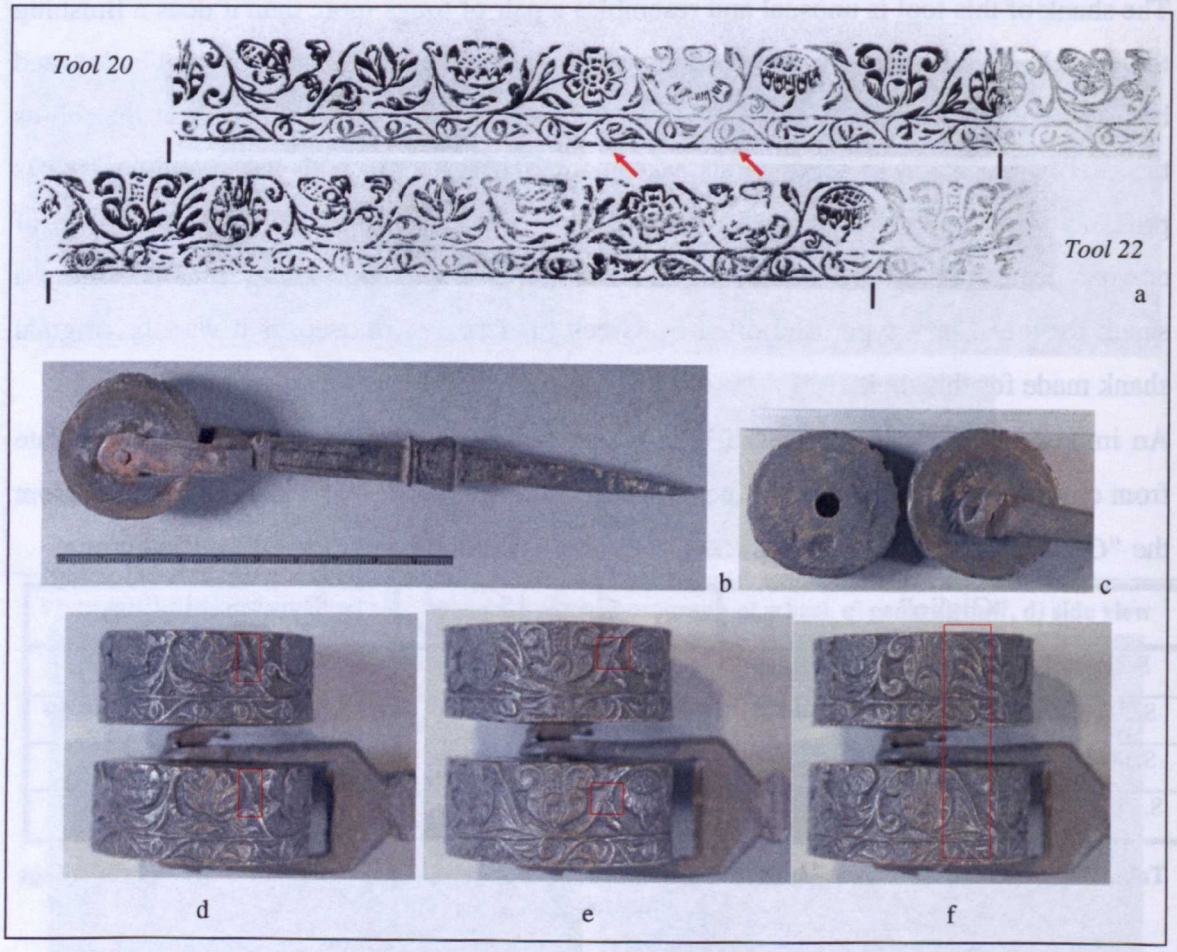


Figure 36 - Tools 20& 22: a) actual size smoke proofs, b) side view of *Tool 20*, c), d) & e) comparison of the wheels of *Tool 20* (bottom) and *Tool 22* (top)

Tool 20 and *Tool 22* are presented side by side, due to their similarities. It is unusual to be able to find two finishing tools so closely related to one another. The result of their examination offers some useful information with regard to the manufacture of decorative rolls of the seventeenth century.

They are both relief tools of copper alloy, with nearly identical motifs. Close observation shows that the motifs only differ in fine details in the engraving. Moreover, more than one fault, such as dents and missing parts of a line, show in both tools in exactly the same

positions. This cannot be a coincidence (fig.36d & fig.36e). The diameter of the tools is exactly the same, the thickness of *Tool 22* being only a fraction narrower than that of *Tool 20.*

Close examination of the surface of *Tool 22* has also revealed a number of casting holes, which have made the tool brittle and at points have caused it to chip (fig.36d). This evidence indicates casting. Whether one was cast with a lost wax mould copying the other or whether both derive from the same metal mould is unclear.

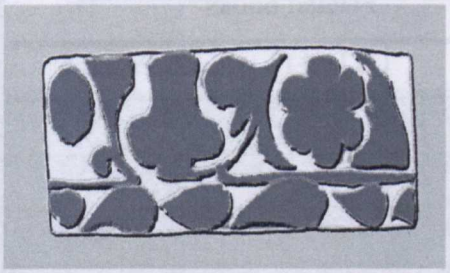


Figure 37 - Hypothetical sketch of the cast wheel, producing the general shapes and outlines prior to being hand engraved.

Nevertheless, it is not possible to say that casting has been used exclusively to produce the whole design on the tools. In fig.36f, as well as in the smoke proofs, a minor difference in the design and unfolding of a branch is discernable between the two tools, which cannot be explained had the tools only been cast. It is most likely that the tools were originally cast, with a large part of the design produced in this way (fig.37), but then hand-work took place, to produce the fine lines within the leaves, flowers and branches of the relief.

Figure 38 - Tool 22 showing deep casting holes, a low relief motif and verdigris corrosion

It is significant to note that *Tool 22* is of much poorer quality than *Tool 20.* Besides the casting holes and the chipped pieces described above, the relief of the motif is much shallower than that of *Tool 20* (fig.38) and with less detail. However, this is not the result of excessive use and wear of the tool, as it would take a full commercial workshop in a busy centre many years if not decades to produce that extent of wear. It is unlikely that the binding workshops of the monastery that served mainly the local needs of the monastic library and occasionally of surrounding dependencies would have similar levels of production.

A number of manuscript bindings were identified with impressions of this motif (Rf.fw10). The differences discussed between the two rolls and shown in fig.36e have made it possible to identify the exact tool from which these impressions were made, and to find that *Tool 22*

does not appear on any Sinai manuscript binding. On the other hand *Tool 20* has been used on 13 manuscript bindings and another 13 new bindings on pre-1600 printed books, made by the *"New Library"* atelier (Boudalis, 2004) at the monastery of St Catherine, which date between 1711 and 1733 (App. I 7).

Manuscripts			Printed books		
S.403	S.442	S.451	S.Pr.43	S.Pr.111	S.Pr.2166
S.1380	S.1381	S.1461	S.Pr.2217	S.Pr.2333	S.Pr.2388
S.1604	S.1627	S.1629	S.Pr.2590	S.Pr.3102	S.Pr.3135
S.1689	S.1701	S.1788	S.Pr.3503	S.Pr.3697	S.Pr.3896
S.1846			S.Pr.4051		

Table 2.7 - Bindings from manuscripts and printed books from St. Catherine's library with impression of (*Tool 20*) Rf.fw10

Damage due to wear on *Tool 22* is therefore not justified and what appears as a greater possibility is that it was a faulty casting that was not used. Instead, *Tool 20* was used extensively as being a more successful casting. What may be inferred from this is that the two rolls are likely to be local products, possibly even by a binder/ metal-worker from the monastery, since, had they been imported products, a faulty and almost unusable cast would not have been worth shipping along with a nearly identical cast of good quality. To this end it is worth mentioning that a fully functioning forge existed at the monastery at some stage, evidence of which survives until today in a basement room near the main church of the monastery[15].

The shank that has survived on *Tool 20* is made of wrought iron and it is probably a remnant from a previous and much earlier roll, the style of which resembles western architectural and design forms of the fifteenth and sixteenth centuries (Racinet, A. & Dupont-Auberville, M., 2006, pp.248-249). Its tang tapers to a sharp point at the end, clearly to facilitate the fitting of a handle, which unfortunately has not survived.

[15] Personal communications with Prof. Nicholas Pickwoad and Father Daniel, treasure keeper of the monastery in 2006, September 2007

2.3.4 *Tool 21*

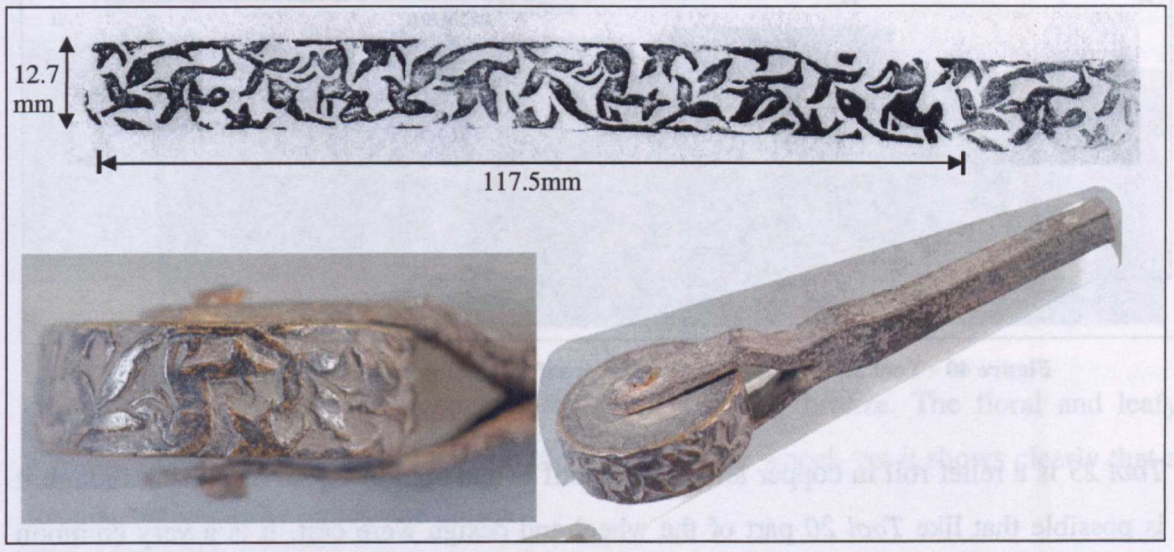


Figure 39 - Tool 21: a) actual size smoke proof, b) photograph of wheel, c) general view

Tool 21 is a relief roll on copper alloy, whose strong reddish colour indicates that it may be bronze. The motif is a combination of animals, birds and floral branches, which are hand-engraved on the face of the wheel, as is shown by the many tool marks visible on it.

The shank of this roll seems to be of a wrought iron, and possibly added to the roll at a later stage from the manufacture of the wheel.

As there are no bindings decorated with this tool, neither its date nor its provenance is known. It can be said however that it is a motif that does not resemble common motifs in Greek bookbinding decoration, but it is most probably a western import.

2.3.5 *Tool 23*

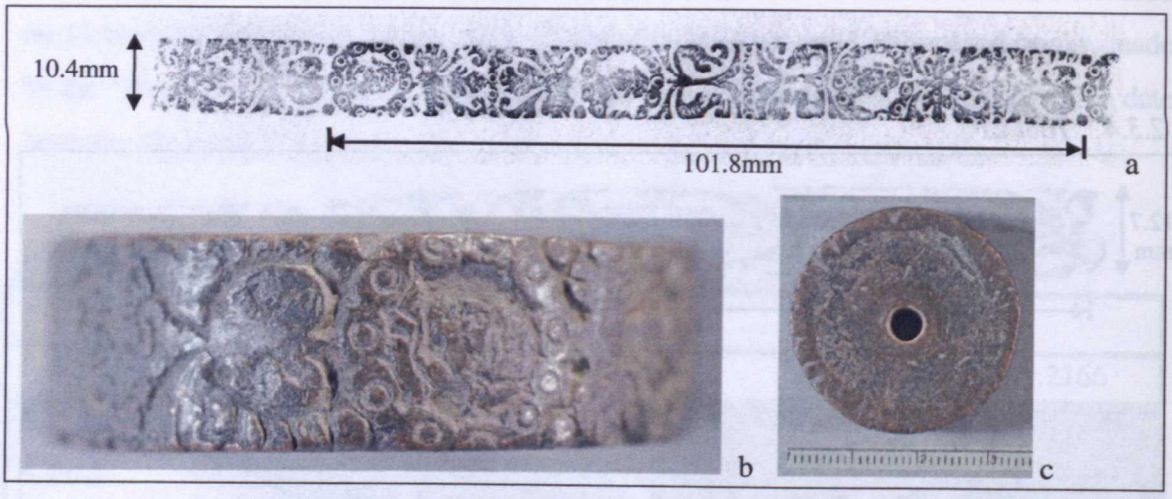


Figure 40 - Tool 23: a) actual size smoke proof, b) photograph of wheel, c) side view

Tool 23 is a relief roll in copper alloy. The motif is hand-engraved on the wheel, though it is possible that like *Tool 20* part of the wheel and design were cast. It is a very common motif for rolls, depicting human profiles within medallions surrounded by stylised floral motifs, which were produced in large quantities throughout the sixteenth century, particularly in Germany (e.g. EDBD r.1667, r.2418), France (Gid, 1984, pl.91-98) and the Low countries (Cockx-Indestege & Storm van Leeuwen, 2005, p.102). Russian bindings, whose binding technique and especially their decoration was heavily influenced by German practice, also demonstrate the extended use of this motif in eastern European bookbinding tradition during the sixteenth and seventeenth century (Klepikov, 1961, Pl.IV). It may be that such a tool would arrive at the monastery through the Eastern orthodox part of Europe with which the monastery had closer relations than with Northern Europe during the specific period.

This tool has not been found on bindings in the monastery of St Catherine's, but another similar tool has, though the tool used on these bindings does not survive. Its impression (Rh.pr01) is found on five bindings from *Group 15* (App.I 5) that date from circa 1633 and a further four bindings from *Group 4* of c.1757-1777, the latter being significantly later than its fashionable appearance on western renaissance bindings. This is indicative of how long it might take for Western fashions to influence the monastery's binding aesthetics.

2.3.6 Tool 24

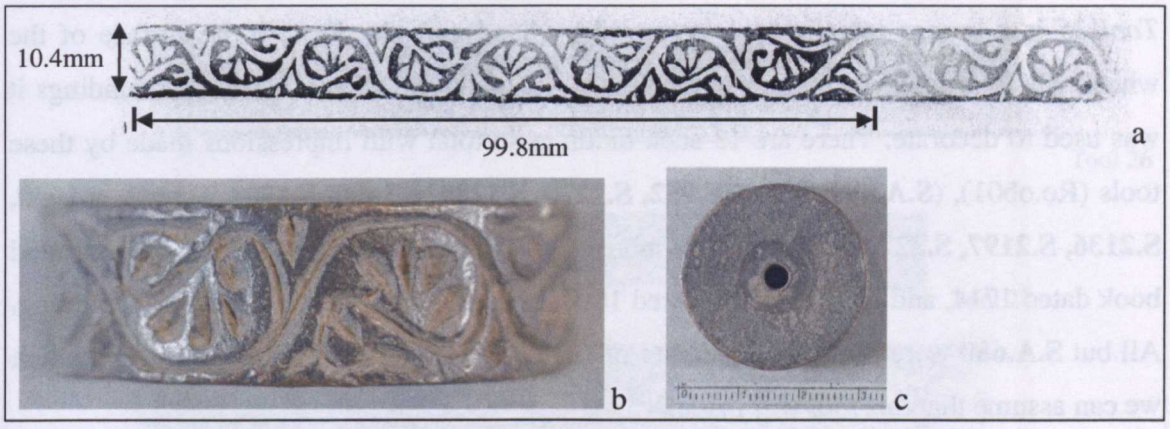


Figure 41 - Tool 24: a) actual size smoke proof, b) photograph of wheel, c) side view

This is an intaglio roll on a copper alloy, most probably bronze. The floral and leafy branches motif is engraved deeply into the surface of the wheel, yet it shows clearly that a hand tool was used to create the design.

There are four impressions of this roll on manuscript bindings which suggest an approximate date for it. These are **S.543** (*Group 12* of the eighteenth century), **S.954** (*Group 4*, c.1757-1777), **S.999** (unknown date) and **S.1916** (*Group 18-"New Library"*, 1711 -1769), indicating that the tool was already in use by c.1711. One last impression is found on the printed volume **S.Pr.6519**, which is dated from 1763 and was most probably made by the *Group 18* workshop.

2.3.7 Tool 25

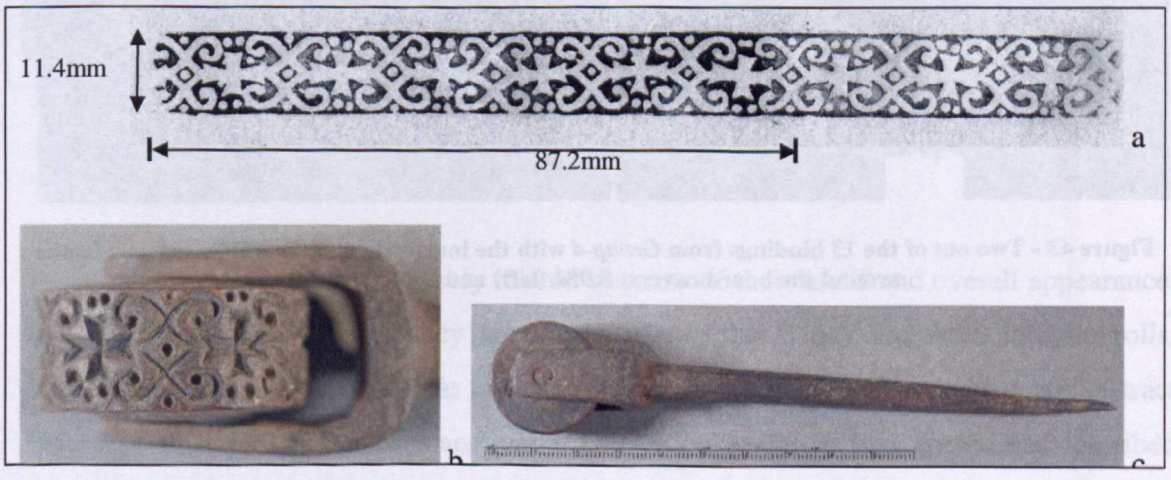


Figure 42 - Tool 25: a) true size smoke proof, b) photograph of wheel, c) side view

Tool 25 is a bronze intaglio tool, engraved by hand very deeply into the surface of the wheel, which also shows in the several high relief and clear impressions on the bindings it was used to decorate. There are 13 such bindings in total with impressions made by these tools (Ro.ob01), (**S.A.680, S.942, S.952, S.1270, S.1289, S.1400, S.1508, S.1542, S.1990, S.2136, S.2197, S.2222** – fig.43). Two more impressions are found on **S.Pr.5254**, a printed book dated 1714, and on **S.Pr.5240**, dated 1694, both of which show evidence of rebinding. All but **S.A.680** were made by the atelier of *Group 4* that dates c.1757-1777, before which we can assume that this tool was made.

The shank of this wheel is made of wrought iron, in a rough and crude manner; however we can not be sure if this is original to the wheel or a later addition.

Figure 43 - Two out of the 13 bindings from *Group 4* with the impressions of *Tool 25,* used as a frame around the board covers: S.952 (left) and S.1400 (right)

2.3.8 *Tool 26, Tool 27 & Tool 28*

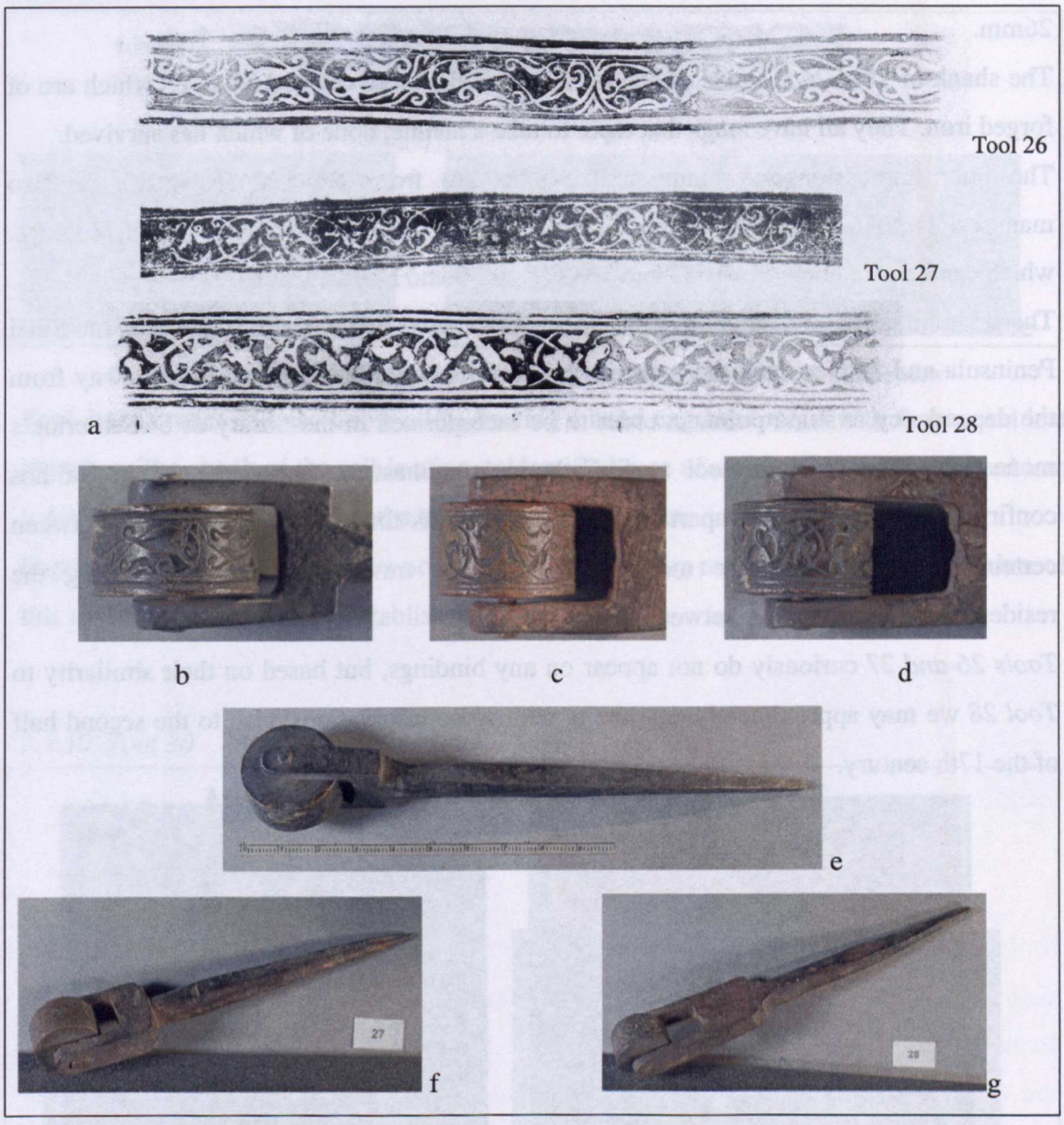


Figure 44 - Tools 26, 27 & 28: a) actual size smoke and ink proofs of the three rolls, b), c)& d) photographs of wheels from Tools 26, 27 and 28 respectively, e), f) & g) side views of Tools 26, 27 and 28 respectively

Tools 26, 27 and *28* are very closely related in terms of their motif and overall appearance. Because of their similarities they are presented together. They are three intaglio rolls, engraved by hand, on what appear to be cast copper alloy blanks. Their motifs are abstract arabesque interlaces of branches and leaves with a double-border line, sometimes described as "Aldine" (Regemorter, 1954, p.12), and not uncommon on Western humanist bindings.

All three of the rolls are particularly small in diameter, measuring between 22mm and 26mm.

The shank of *Tool 26* is made of copper alloy, unlike those of *Tool 27 & 28* which are of forged iron. They all have tangs that taper to take a handle, none of which has survived.

The only impressions on bindings that exist are from *Tool 28* (Rf.fw21), on two manuscripts, S.764 and S.2140 (fig.45). They belong to the *"Raithos"* group of bindings, which can be dated between 1652 and 1689 (App.I 9 and Boudalis 2004, p.186).

These bindings were made at the dependency of Raithos (El-Tor), which is within the Sinai Peninsula and not far from the monastery. Clearly, these bindings were taken away from the dependency at some point, in order to be incorporated in the library of St.Catherine's monastery. Discovering a tool at St.Catherine's monastery that was used in Raithos confirms the suspicion that apart from the manuscripts that occasionally moved between certain dependencies of the monastery, tools also travelled, possibly following the residence of a monk-binder between them.

Tools 26 and 27 curiously do not appear on any bindings, but based on their similarity to *Tool 28* we may approximately date them, with some reservations, also to the second half of the 17th century.

Figure 45 - Two bindings from the "Raithos" group with the impressions of *Tool 28*: S.764 (left) and S.2140 (right)

2.3.9 Tool 29

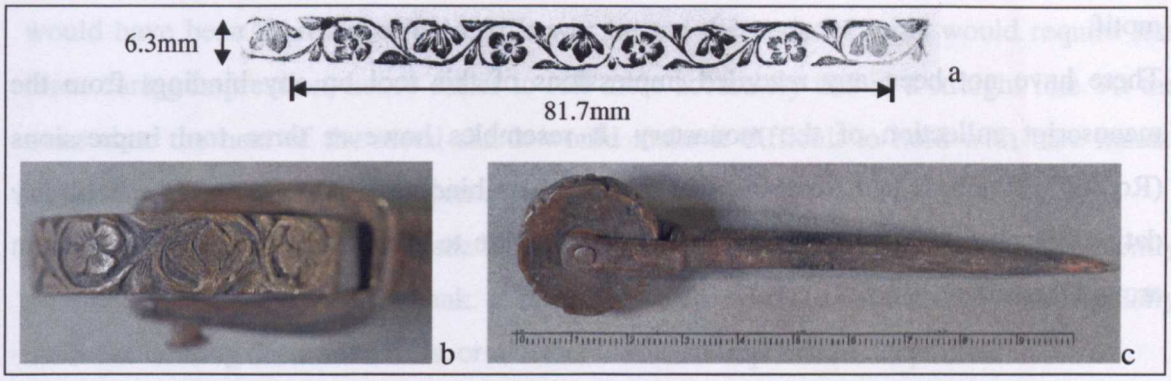


Fig. 46 Tool 29: a) actual size smoke proof, b) photograph of wheel, c) side view

Tool 29 is a relief roll on copper alloy, bearing a hand engraved motif with flower and leaf branches. The shank of the roll is of an unidentified type of metal that has been forged into a double-carriage at one end and a tapered tang at the other.

Impressions with this motif have not been recorded on any manuscript bindings; the date of this tool cannot therefore be established.

2.3.10 Tool 30

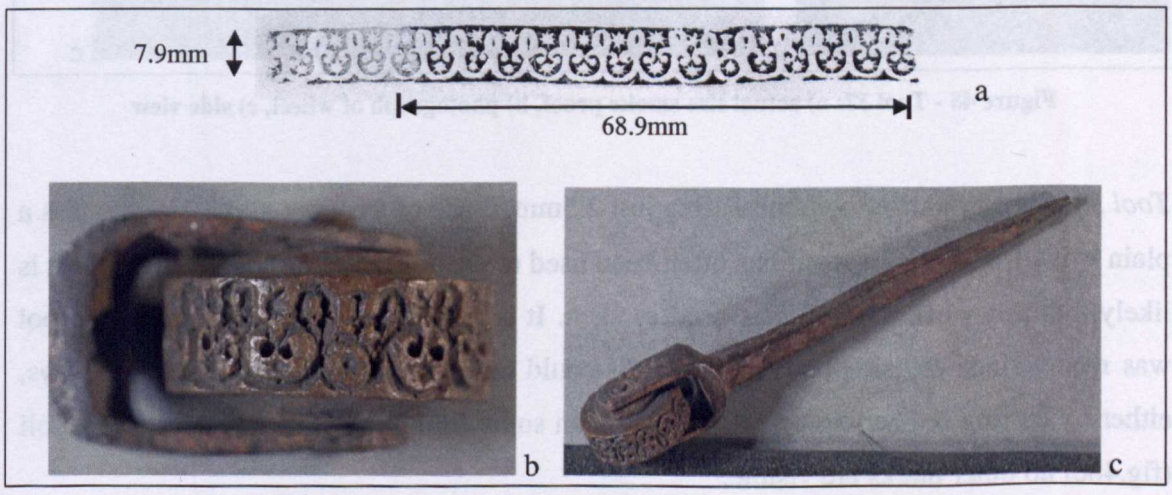


Figure 47 - Tool 30: a) actual size smoke proof, b) photograph of wheel, c) side view

This roll is engraved in intaglio on a copper alloy wheel. Some holes in the design are particularly deep and it is possible that a drill was used to make them. Casting holes are also visible on the tool, which is evidence of a casting process involved in its making. As discussed in previous sections of this chapter (2.3.3), it is more likely that a blank wheel

was cast, following which hand work must have completed the details in the design of the motif.

There have not been any recorded impressions of this tool on any bindings from the manuscript collection of the monastery. It resembles however three tool impressions (Ro.ob02, Ro.ob.03 and Ro.ob09) that are found on bindings in the St.Catherine's library dating between 1690 and 1730. It may be reasonable to assume that this tool dates from around the same period.

2.3.11 Tool 37

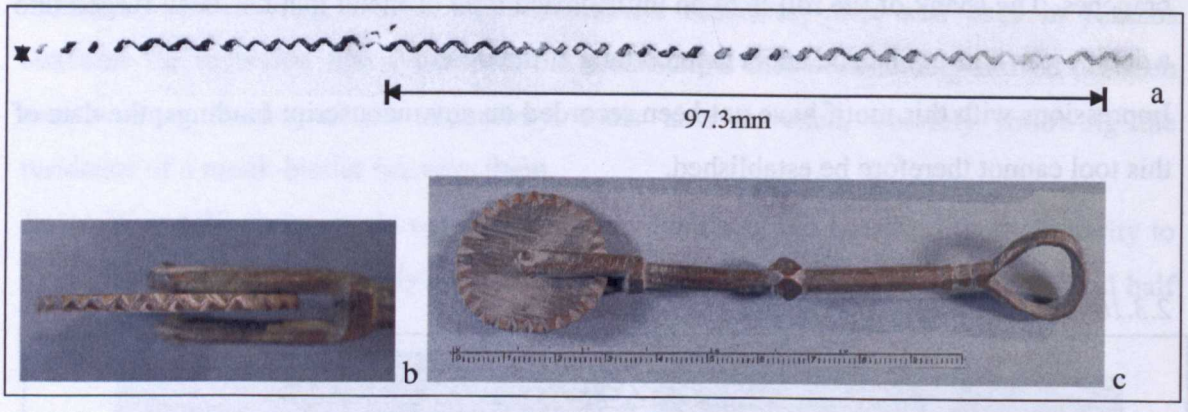


Figure 48 - Tool 37: a) actual size smoke proof, b) photograph of wheel, c) side view

Tool 37 is a very narrow roll, measuring just 2.5mm, made of a copper alloy. The motif is a plain wavy line that as a motif has often been used to create frames or border lines and it is likely that this particular roll was used as such. It is difficult to understand how this tool was made, since the simplicity of its motif could have been achieved in different ways, either by casting or shaping by hand. Other than some filling marks at the sides of the roll (fig.48c) no other marks are visible.

The shank of the roll also functions as its handle, and was made with a ring at its end opposite to its double-carriage, either to aid holding the roll while it was being used or as means of hanging it up for storage. Trying to make a smoke and an ink proof with this roll led me to believe that this handle was probably foreign to the roll. There is a big gap between the double-carriage and the sides of the roll itself, making it difficult to roll it straight. This must have made tooling with this roll extremely difficult, when accuracy is

required in order to impress a deep and straight line. It is also curious whether this roll would have been used hot or cold. If it was heated then possibly this would require less force during impression, hence easier to roll more accurately and in a straight line. At the same time the heat of the metal shank would make it difficult to hold with bare hands. Unfortunately, this remains an open question.

It is possible that the roll was made by one person and the binder who used it subsequently provided the carriage for the shank. It is also not clear whether the carriage was originally made for holding decorative rolls, or whether it was an improvised adaptation.

Impressions of this roll have not been distinguished on bindings of the library. As will also be discussed in chapter 2.4 on multi-line tools, an impression of this motif could very easily be mistaken for one made by another tool, due to its simple design, which would make it easy for a toolmaker to make an almost exact copy.

2.4 Centre & Corner pieces

There are two centre pieces and four corner pieces among the finds. They are all average or small in size, carrying depictions of religious or vegetal motifs. Most interesting is the fact that one centre piece and two corner pieces have been engraved on both sides, an economy devised by the toolmaker that will be explored further in this chapter. For reasons of consistency, the engraved surfaces on these tools are not treated as separate tools, and both sides are therefore examined and discussed together.

2.4.1 Tool 31

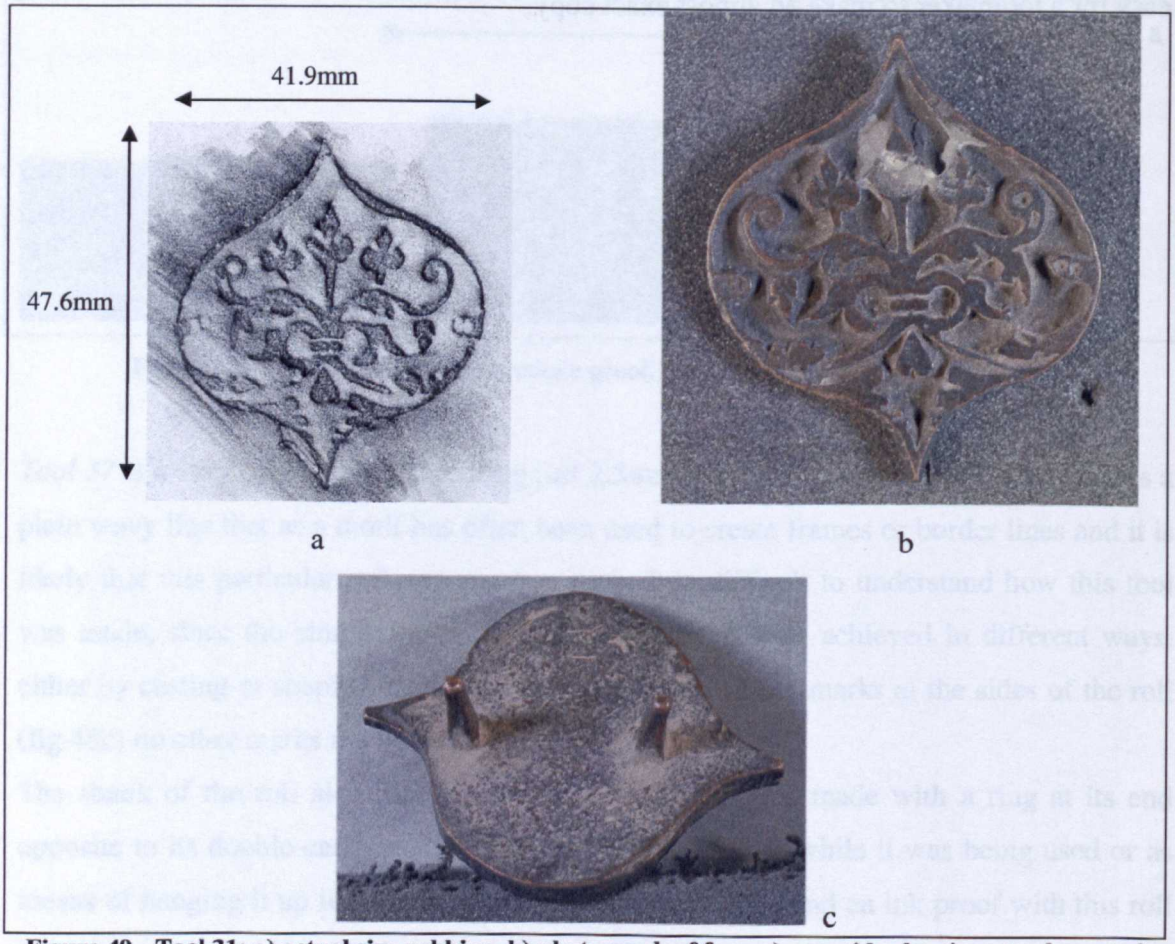


Figure 49 - Tool 31: a) actual size rubbing, b) photograph of face, c) rear side showing attachment pins

Tool 31 is a centre piece on copper alloy, the colour and texture of which resemble bronze. The edges of the tool are shaped into an oval with two points on opposite sides, within which is a stylized floral motif in relief.

There are important indications to suggest that the entire tool has been cast, without any hand work involved in shaping the motif. It is the high, three-dimensional relief that would have been difficult to produce by hand engraving. Casting holes are also visible in many parts of the background of the relief tool (fig.50). In addition, the surface of the relief is very flat and uniform and does not show any tool marks. The same is true of the background, which, with the exception of the casting holes, is very smoothly shaped and refined, without any sign of handwork. Instead, file marks are prominent around the sides of the tool, a common indication of a casting being finished around the edges.

Fig. 50 Detail of casting holes in the background of the face

There are two pegs on the reverse side of the tool which are approximately 1cm long. They were most certainly used to attach the centre-piece to a block to make the centre-piece easier to use. Unfortunately this block does not survive, and we can therefore only guess at its appearance based on other examples of surviving finishing tools.

A centre piece that survives at the Bodleian Library, Oxford, shelfmark **Janitors List 582,** dates from 1635-6A.D. The brass tool is mounted on a wooden block, to which it is fastened by pins similar to those found on *Tool 31* (fig.51b). The format of this centre-piece and its wooden block suggest that the tool was impressed on a book cover with the use of a press, though this cannot be confirmed.

a

b

Figure 51 - a) Bodleian Library centre-piece, Janitors List 582 (left) and b) detail of the reverse that shows the metal pin fastened into the wooden block (right)

A centre-piece from Oriel College, Oxford (fig.52) demonstrates another variation of attachment of a centre-piece to a wooden block. The form of this attachment is neither visible nor identifiable. Yet, what draws our attention is the long piece of wood used that must have also functioned as a handle. The tool was most probably not put in a press in order to be impressed because the slightly uneven shape of the wooden block would be unsuitable but most probably would have been hit with a mallet or similar instrument.

Figure 52 - Centre-piece C.III.26 from Oriel College, Oxford

We may not know for sure what type of block *Tool 31* might have had, but I do not believe that it would have been very different from the two examples in Oxford. An impression of *Tool 31* (Cf.fw01), is found on two Greek bindings (**S.1067, S.1161 –** fig.53) only, which are the first bindings on their textblocks. The manuscript of **S.1067** of *Group 72* dates from the sixteenth century and it is in its first binding, while **S.1161** was made by the workshop of *Group 42* that is dated c.1659. The tool is therefore most likely to have been made at some point in the sixteenth century.

Figure 53 - The binding of S.1067 (left) with a gold-tooled impression of *Tool 31* and of S.1161 (right), which carries a double impression of *Tool 31* at the centre of the board

2.4.2 Tool 32

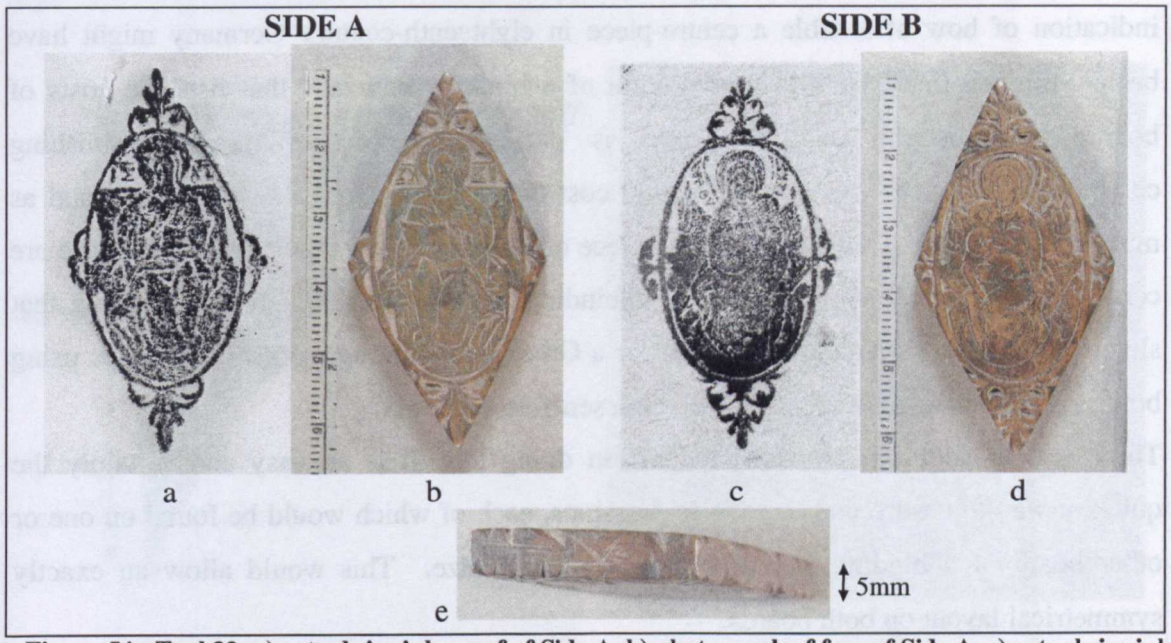


Figure 54 - Tool 32: a) actual size ink proof of Side A, b) photograph of face of Side A, c) actual size ink proof of Side B, d) photograph of face of Side B, e) side view

Tool 32 is a copper alloy (possibly brass) centre-piece, engraved by hand on both sides. Side A has a depiction of *Christ enthroned* and Side B the *Virgin & Child.* These are motifs which are often found in the centre of boards on East European and Greek bindings from the seventeenth century and onwards, most frequently arranged with the *Christ enthroned* on the left board and *Virgin & Child* on the right board.

As impressions of this centre-piece have not been recorded on any bindings from the library, it is therefore difficult to date the tool accurately. Stylistic resemblance to other tool impressions recorded from the St.Catherine's bindings (e.g. Ct.je03) may suggest that it dates from the mid-seventeenth century. However this is a motif that changed little in style, while continuing to appear on Greek bindings from the seventeenth to the twentieth century[16], with the result that it cannot be dated with any confidence.

By being engraved on both sides this tool presents a practical and economical use of a centre-piece, since it saves the toolmaker on the cost of metal, as he ends up with two motifs on one tool. We do not know what the cost of brass might have been at the time or the place of its making; moreover, any calculation of the costs involved in the production of

[16] Very similar representations of the *Virgin and Child* centre-piece are found on tools used by a bookbinding workshop in Mount Athos during the mid-20th century (Leggas, 1999, p.222)

a brass centre piece would be complex and extremely hypothetical. However, as an indication of how affordable a centre-piece in eighteenth-century Germany might have been, M.Foot's (2006, p.108) presentation of a binder's manual[17] that lists the costs of bookbinding material and equipment is particularly enlightening in establishing comparative costs. A centre-piece would cost twice the price of a sewing frame and as much as a set of large titling letters or a piece of large and good quality pigskin. These are certainly considerable sums for any bookbinding workshop. Although it is possible that slightly different cost analogies existed for a Greek bookbinding workshop, perhaps using both sides of a blank centre piece was still a sensible economy.

There are, in addition, practical benefits in doing this. It is an easy and certainly the quickest way to ensure that the two impressions, each of which would be found on one or other board of a binding, are of exactly the same size. This would allow an exactly symmetrical layout on both boards.

Double-sided centre-pieces are by no means a Greek or even East European convention. They were certainly used, if not first introduced, by Islamic toolmakers on Islamic centre-pieces (Bosch et al, 1981), the forerunner of the Western centre piece and certainly adopted by the latter, as late sixteenth century binder's inventories may testify (Kirchhoff, 1889 after Szirmai, 2000, p.244 and K.M.Stevens, 'A Bookbinder in Early Seventeenth-Century Milan', *The Library,* 6th series, vol18, no.4, (1996) after Foot, 2006, p.108).

The lack of a handle or the possibility of attaching the tool to a supporting block, as in *Tool 30,* since it is double-faced, does not allow us determine if this centre piece was used in a blocking press or by hammering, both practices being equally known to bookbinders, as we know from several western and Islamic binder's manuals and inventories (e.g. al-Sufyani, 1619 manuscript after Bosch et al, 1981 and J.G.Zeidler, *Buchbinder-Philosophie,* Hall, 1708 after Foot, 2006, p.109). Yet we still lack equivalent inventories from Greek binders that could clarify what was the common practice for them at different periods. What would confirm the use of a blocking press by binders at the monastery would certainly be the discovery of one within its premises. Given the habit of the monks over the centuries to preserve all that is old and to discard little, as the discovery of these finishing tools shows, it is still possible that such a piece of equipment might come to light.

[17]J.G.Zeidler, *Buchbinder-Philosophie,* Hall, 1708

2.4.3 Tool 33

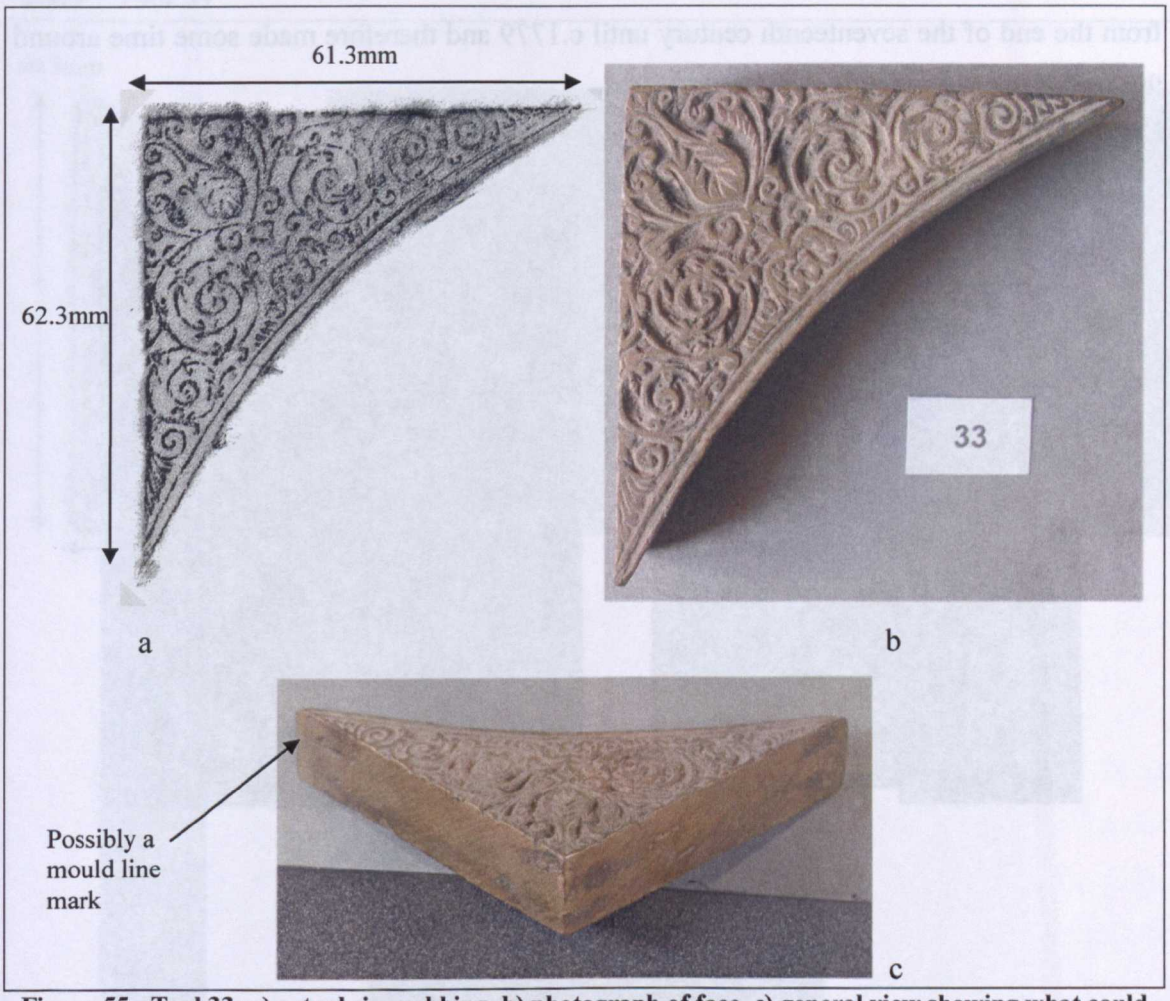


Figure 55 - Tool 33: a) actual size rubbing, b) photograph of face, c) general view showing what could be a mould line mark

Tool 33 is a corner-piece whose colour suggests that it is of brass. It is a thick tool, measuring 13mm in thickness, with a representation of a flower and leafy branches on one side of the tool only.

The motif has been hand-engraved. This can be deduced from the fine lines and low-relief of certain details of the tool and the many clear tool marks. However, the perfectly square and even sides of the tool and a line running across one side of it that resembles a mould line mark (fig.55c) are indications that the motif must have been engraved on a cast blank.

Impressions of this corner-piece (Lf.fw05) are found on five Greek manuscript bindings from St.Catherine's (**S.100, S.295, S.460, S.696 and S.942**) that fall into three different bookbinding groups, *Group 4, 22* and *67*. Based on the dates of the above manuscripts and

of their bindings (Chapters 3.1.8, App.I 8 and 3.1.9), it would appear that the tool was used from the end of the seventeenth century until c.1779 and therefore made some time around the end of the seventeenth century.

Figure 56 - Three bindings with the impressions of *Tool 33*: S.100 (top left) and S.460 (top right), are from *Group 22*, while S.295 (bottom) is from *Group 67*.

2.4.4 Tool 34

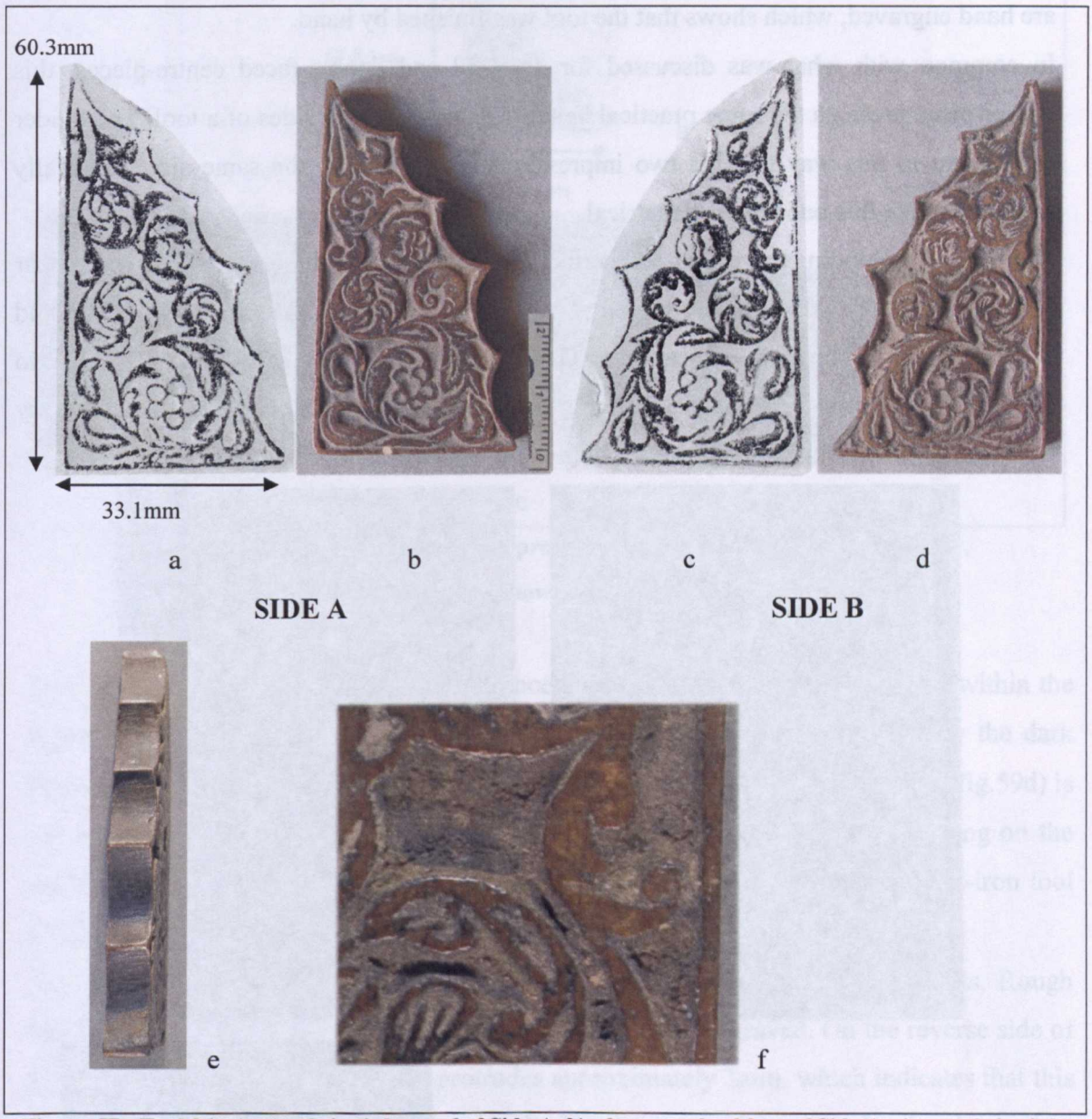


Figure 57 - Tool 34: a) actual size ink proof of Side A, b) photograph of face of Side A, c) actual size ink proof of Side B, d) photograph of face of Side B, e) side view, f) detail showing casting holes

Tool 34 is a double-sided corner piece, possibly made of a copper alloy. The two motifs represent flowers and leafy branches and are almost mirror images of each other.

Both motifs stand in high relief. This fact, as well as what appears to be casting holes, suggest that the whole tool was cast, perhaps only to produce the blank or part of the design

as in *Tool 20*. The details of the flowers and leaves, however, where tool marks are visible, are hand engraved, which shows that the tool was finished by hand.

In common with what was discussed for *Tool 32* and double-faced centre-pieces, this corner-piece presents the same practical benefits engraving both sides of a tool. The binder can ensure in this way that his two impressions are of exactly the same size, especially when tools like this one are asymmetrical.

There are four bindings at the St. Catherine's library where both sides of this tool appear (Lf.fw03a and Lf.fw03b). These bindings are on manuscripts **S.1632, S.1838, S.1873** and **S.2016** (fig.58). They are allocated to *Group 69,* one of which (**S.1632**) is dated to 1694A.D. It appears to be the first binding on this manuscript and possibly contemporary with it; it may therefore be suggested that this tool was made in or before that year.

Fig.58 Three bindings with the impressions of *Tool 34*: S.1632 (top left), S.1838 (middle) and S.2016 (right)

2.4.5 Tool 35

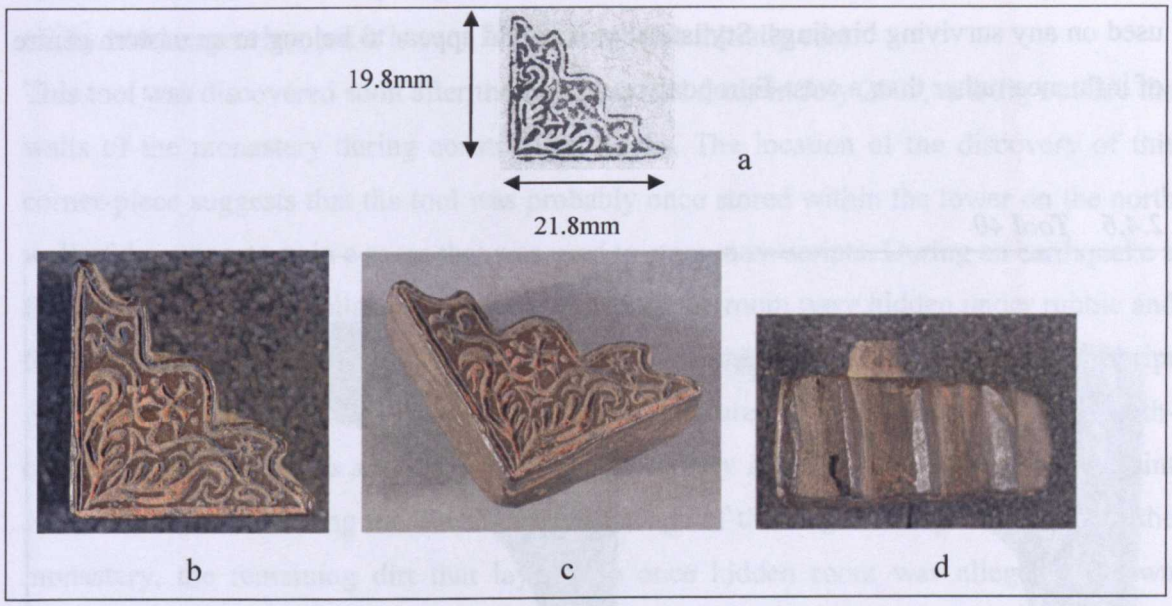


Figure 59 - Tool 35: a) actual size ink proof, b) photograph of face, c) general view, d) side view showing the small tang

Tool 35 is a small corner-piece. The presence of slag on its surface, particularly within the engraved lines may suggest that it is wrought iron, which is also confirmed by the dark brown colour of the tool. The fibrous surface as observed at the sides of the tool (fig.59d) is yet another characteristic of wrought iron (Selwyn 2004, p.91). However, the tang on the reverse-side of the corner-piece would be difficult to make integral to a wrought-iron tool of this shape, which leaves the possibility open of a different alloy being cast.

The motif depicts a flower and leafy branches, on top of which there is a cross. Rough curves and tool marks are visible, which suggest it is hand engraved. On the reverse side of the corner-piece there is a tang that protrudes approximately 3mm. which indicates that this tool was perhaps made to fit onto a block. The tang may however also be the broken remnant of a longer piece of metal which could have functioned as the shank for use by hand with a wooden handle or by hammering. Judging by the small size of this corner-piece both of these would have been possible, but without further evidence, neither can be confirmed.

Dating or locating the provenance of this tool has also been problematic, since it was not used on any surviving bindings. Stylistically, it would appear to belong to an eastern centre of influence rather than a west-European one.[18]

2.4.6 Tool 40

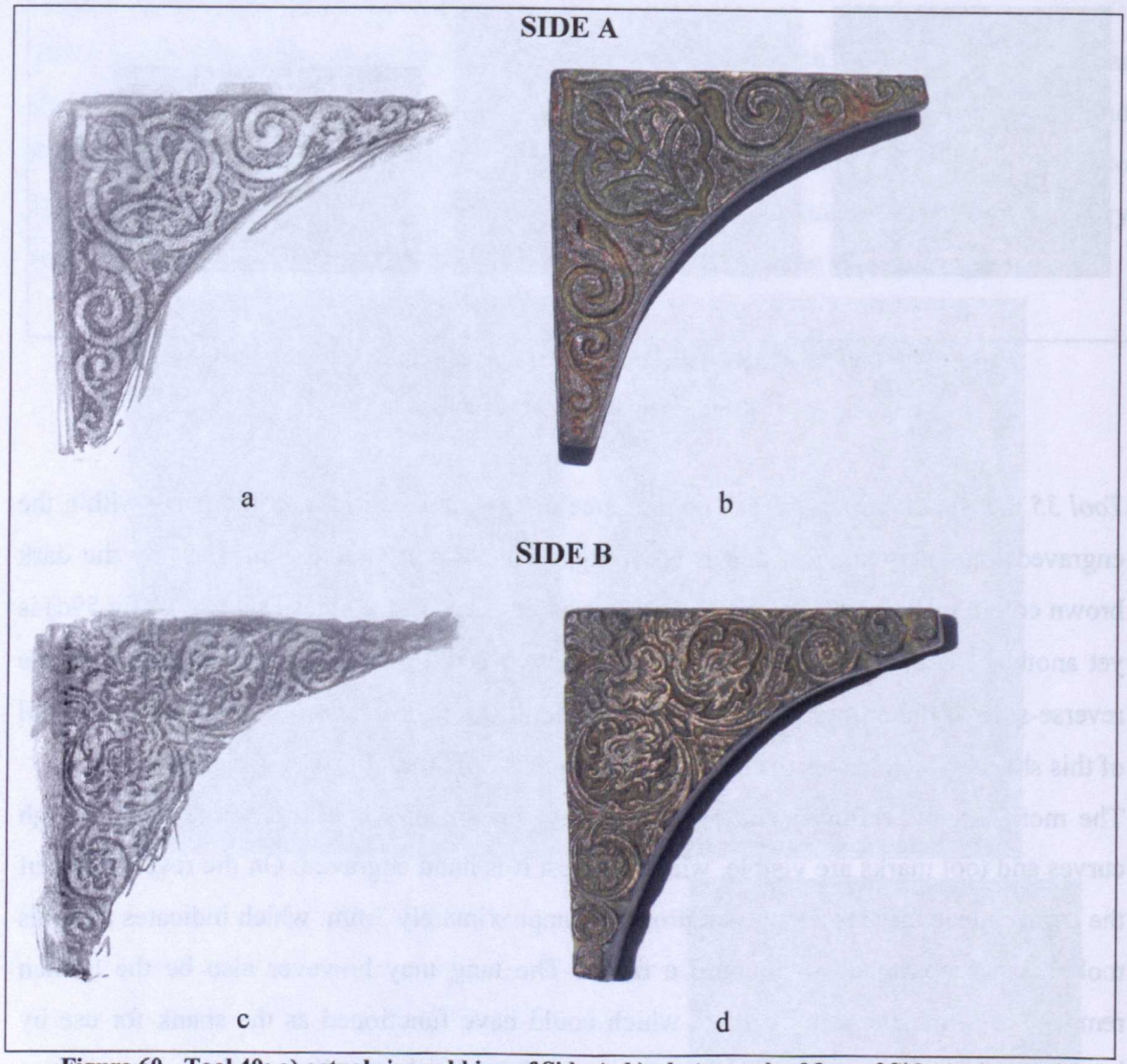


Figure 60 - Tool 40: a) actual size rubbing of Side A, b) photograph of face of Side A, c) true size rubbing of Side B, d) photograph of face of Side B

Tool 40 is a brass corner-piece, with motifs engraved on both sides of the tool. These are two entirely different versions of stylized vegetation. Side B (fig.60c,d) shows marks of

[18] personal communication with Prof. Mirjam Foot

tool-work as well as fine hatching on the surface, which confirms that the tool was finished-off by hand engraving, yet it is very likely that it was initially cast.

This tool was discovered soon after the finishing tool finds in July 2007, at a dig outside the walls of the monastery during construction works. The location of the discovery of this corner-piece suggests that the tool was probably once stored within the tower on the north wall of the monastery, in a room that was used to store manuscripts. During an earthquake a floor above this room collapsed and the contents of the room were hidden under rubble and forgotten about. In 1975, during the renovation of the tower, hundreds of manuscript fragments were recovered, among which great treasures such as leaves of the fourth-century *Codex Sinaiticus* and leaves of an eight-century *Ladder of Divine Ascent* by Saint John Climacus. Following the discovery and salvage of the fragments by the monks of the monastery, the remaining dirt that lay in the once hidden room was allegedly thrown outside the wall, right below the location of the room. This is the exact spot where this corner-piece was found[19], which suggests that the tool was once inside the room with the manuscript fragments and that failing to attract attention was thrown outside the walls of the monastery and got temporarily lost.

Impressions from both sides of the corner-piece are found on a few bindings from manuscripts of the collection. Side A (Lf.fw39) appears on two bindings: **S.73** (fig.61) is a rebound manuscript of 1620A.D. from *Group 67* and **S.1838** is of the eighteenth century and comes from *Group 69.* Side B (Lf.fw04) is impressed on four bindings on eighteenth century manuscripts, **S.1712** (fig.61), **S.1860** and **S.1892,** which belong to *Group 75* and **S.1838** from *Group 69.* Impressions from both sides of the corner-piece together are present only on **S.1838.** Unfortunately, none of the above bindings can be dated with any certainty, due to the lack of dated and signed notes; with the result it is impossible to estimate the date of this tool with any accuracy.

However, *Tool 40* appears together with *Tool 34* on **S.1838.** As discussed in 2.4.4, *Tool 34* was probably used circa 1694A.D; it is thus possible to establish this date as the *terminus ante quem* for *Tool 40.*

[19] I am indebted to Father Daniel, monk of the monastery of St.Catherine's, for sharing this information with me. The discovery of this specific tool was made by him in October 2007, while he was in charge of the construction work.

Figure 61 - Two bindings with the impressions of the two sides of *Tool 40*: S.73 (left) has an impression of SIDE A, and S.1712 (right) an impression of SIDE B.

2.5 Straight-Line tools

Three straight multi-line tools have been discovered, two of which are multi-line creasers and one is a fillet. The two creasers are quite different from old surviving creasers that we have seen up to now or from those that are used today.

Impressions of these tools have not been identified on any bindings, not because they do not necessarily exist, but because it is not easy to distinguish one straight-line tool from another, based on their impressions. They are distinguished by the number of lines they would make, offering single, double, triple, quadruple and, very rarely, quintuple lines, but it would be easy for two different straight line tools to leave an identical impression, as only the number of lines, their thickness and distance between them would be enough to make them look identical. As a result, they cannot be helpful or accurate for identification purposes; thus in this research project, their impressions have been omitted from the process of classification and identification.

However, these straight-line tools are interesting as objects. They reveal details that have not been available previously and also show methods of manufacture that are worth discussing.

2.5.1 Tool 36

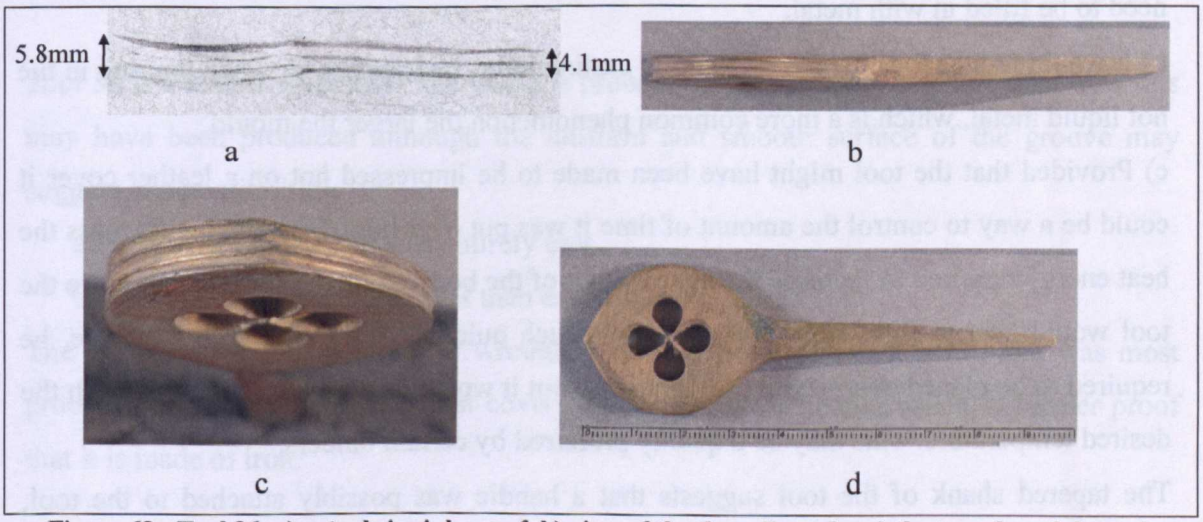


Figure 62 - Tool 36: a) actual size ink proof, b) view of the three-line edge c) the top edge of the tool showing the joining of the four-line and the three-line relief, d) side view

This straight-line tool cannot be described either as a creaser or as a pallet. Moreover it does not resemble any finishing tool that I have seen before. It is made of brass, in one flat piece measuring 5mm in thickness, which consists of a flat, mandorla-shaped head and a tapered shank. The lines which were used to tool the leather are engraved (fig.62b,c). What is unusual about the tool, as well as possibly unique, is that instead of having engraved grooves to form a three-line relief all around the head, the toolmaker chose to shape half of the tool with a three-line relief and the other half with a four-line relief, the two meeting at the point at the head of the tool (fig.62c). He therefore provided two types of creaser on one finishing tool, which is simple and wise fabrication that apart from being economic on brass, it is useful practice for a craftsman to combine different functions in one tool. minimizing the amount of different tools he needs to have in case he needs to travel with it. The uniform appearance of the flat surfaces of the tool may be an indication that it was cast. The same cannot be said confidently about the shaping of the relief lines, for which there is a significant lack of evidence.

The head of the tool has another peculiar feature. Four tear-shaped holes arranged n the shape of a cross are located at the centre of the head of the tool (fig.62d). At first sight this appears as a decorative feature of the tool, however it might have had a practical purpose too. A few hypotheses can be made:

a) It would be saving in material during the casting process, since a smaller surface would need to be filled in with metal.

b) It would reduce the chances of forming casting holes by trapping air when pouring in the hot liquid metal, which is a more common phenomenon the larger the mould.

c) Provided that the tool might have been made to be impressed hot on a leather cover it could be a way to control the amount of time it was put over heat. By reducing its mass the heat energy required to increase the temperature of the body would be far less, therefore the tool would heat to the required temperature much quicker. The tool would therefore, be required to be placed over heat more frequently but it would also need less time to reach the desired temperature. This may be a quality preferred by certain binders.

The tapered shank of the tool suggests that a handle was possibly attached to the tool, which has unfortunately not survived. As it is difficult to know on which bindings this tool may have been used, it is not possible to estimate date of the tool.

2.5.2 Tool 38

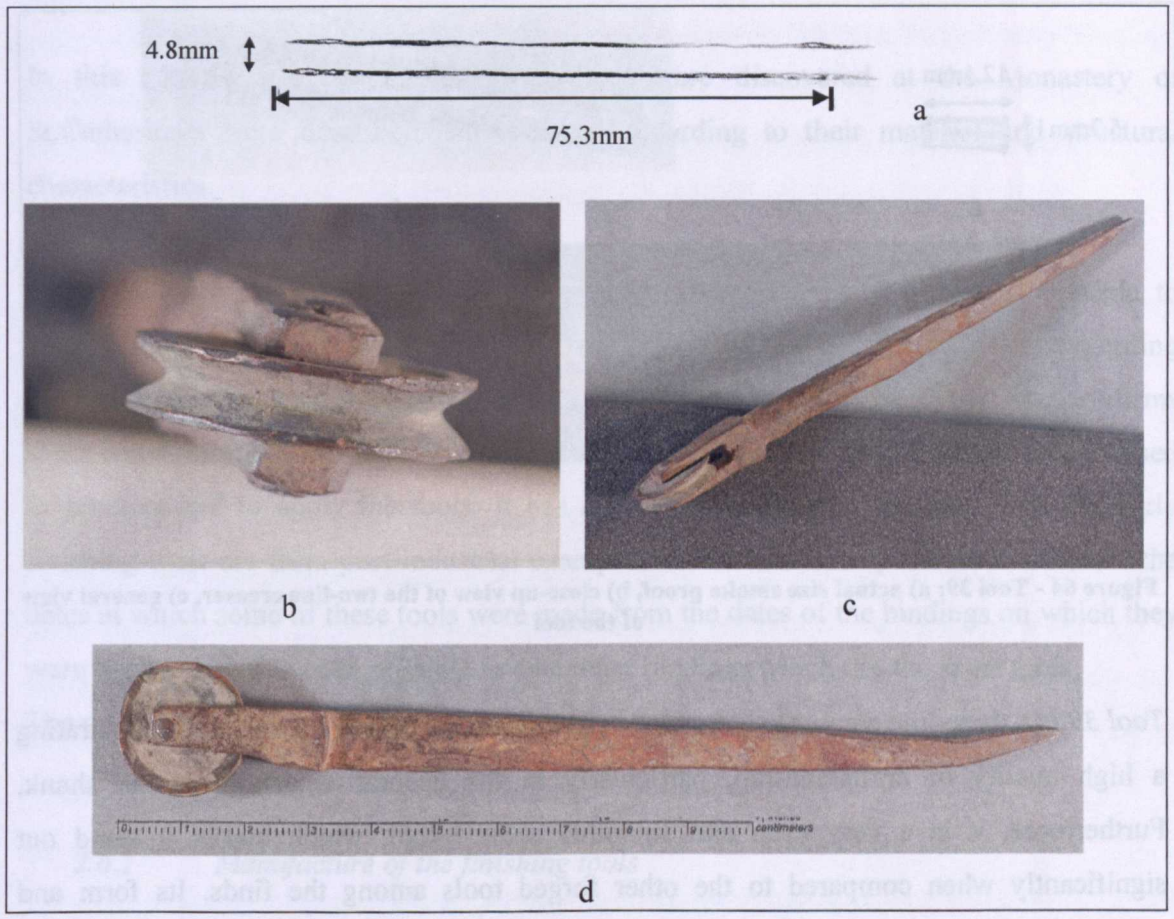


Figure 63 - Tool 38: a) actual size smoke proof, b) close-up view of the two-line fillet c) general view of the tool, d) side view

Tool 38 is a double fillet tool. The wheel is probably a copper alloy. It is not clear how this may have been produced although the uniform and smooth surface of the groove may suggest two possibilities:

a) the wheel of the tool was entirely cast

b) a blank was cast, which was then engraved on a lathe.

The shank of the tool is made of wrought iron that is tapered to a point, and was most probably fitted with a handle. Rust covers the length of the shank, which is further proof that it is made of iron.

2.5.3 *Tool 39*

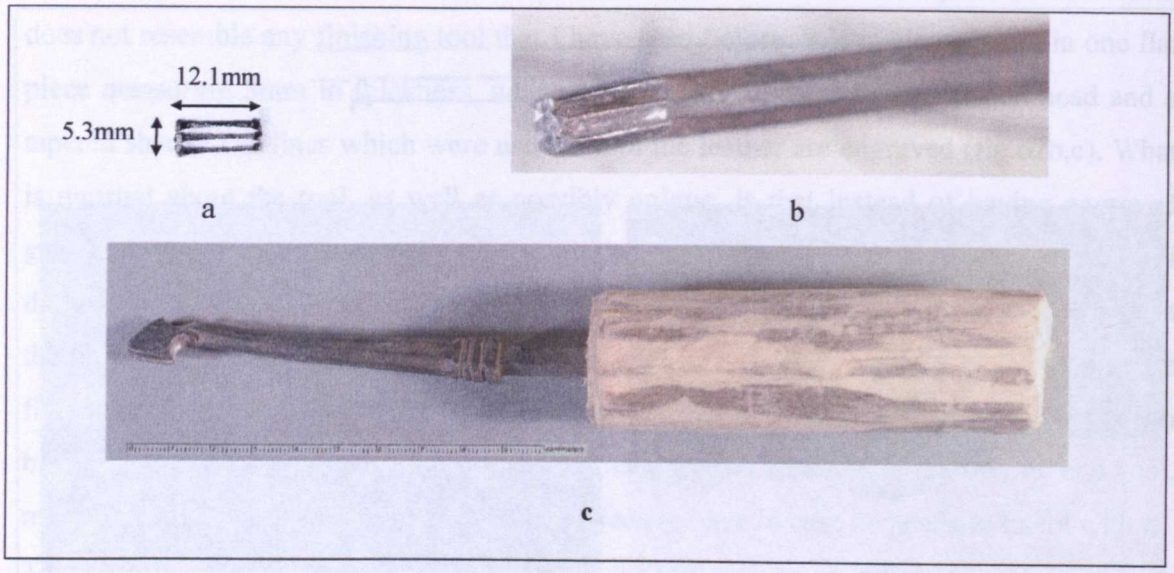


Figure 64 - Tool 39: a) actual size smoke proof, b) close-up view of the two-line creaser, c) general view of the tool

Tool 39 is a three-line creaser made of wrought iron. It is a very refined tool, demonstrating a high quality of craftsmanship, particularly in the decorative details of the shank. Furthermore, it is a very even and smoothly shaped tool, which makes it stand out significantly when compared to the other forged tools among the finds. Its form and geometry reflect Gothic architectural styles and design of the early fifteenth century (only indicatively Frank, 1949, p.540, Pl.XXIII), but it is impossible to be certain about its provenance and date.

This creaser is the second tool to have a surviving handle. It is a roughly and possibly "home-made" wooden cylindrical handle, that resembles very much that of *Tool 18* and they were undoubtedly supplied by the same source or binder.

It is possible therefore that at some point *Tool 18* and *Tool 39* formed part of the same kit of tools. A way to confirm this would have been to compare the impressed straight lines from the bindings that bear the impressions of *Tool 18* with the smoke proofs from *Tool 39*. However as there are only two bindings (**S.256, S.1935**) that bear an impression of *Tool 18*, this does not constitute a large enough sample from which to draw conclusions, even though a match with one of the two bindings can be confirmed (**S.1935**).

2.6 Conclusions

In this chapter the 40 finishing tools that were discovered at the Monastery of St.Catherine's were described and analysed according to their material and structural characteristics.

From the evidence gained from the investigation of the tools, it has been possible to identify a number of unknown features of finishing tools used by Greek binders, regarding their manufacture, their methods of application and their origin. Other evidence confirms some earlier speculations regarding certain techniques used by toolmakers and binders used to produce and to apply the tools. It has also been possible to see how different early finishing tools are from post-industrial examples. It has also been possible to estimate the dates at which some of these tools were made from the dates of the bindings on which they were used. It has also been possible to date other bindings which use the same tools.
The outcomes of the investigations are summarized as follows:

2.6.1 Manufacture of the finishing tools

1. Copper alloys and wrought iron were the common materials used for making finishing tools. The components of the copper alloys in most cases have not been identified, for which further analysis is required; however both bronze and brass have been identified in separate tools, based on visual observation. Wrought iron was used for small hand tools (*Tools 1, 6* and *8)* as well as for one corner-piece (*Tool 35).* The choice of metal does not seem to coincide with a particular period nor is there a characteristic distinction in that matter between the earlier and later tools. Indicatively, the roughly forged *Tool 1* probably dates from the late fourteenth century, while *Tool 8* is from the mid-eighteenth century and a similarly wide time-spread is also found for the use of copper alloys.

2. As far as the four wrought iron tools that have survived demonstrate, the iron tools were all forged into shape. None of these show signs of casting, neither for the

production of the blanks nor for the engraved face. The motifs on the iron tools were engraved with v-shaped gravers (*Tool 3)*, gouges or other hand-worked pointed tools and files. In contrast, the copper alloy tools were not always entirely hand engraved. There is visual evidence to suggest that blanks were cast in 14 out of the 40 finishing tools, including the small hand tools, the rolls and the centre pieces. More striking is the evidence from three tools: *Tool 20, 22 and 31.* The first two are rolls with almost identical motifs between them. It was demonstrated that casting must have been used to produce not merely the empty tool blanks but possibly a great part of the design too. Nevertheless, hand-engraving was certainly employed to complete the design, thus making each of the two rolls unique. *Tool 31* however is a centre-piece that has no signs of hand-engraving. What is more, evidence such as the casting holes, a high three-dimensional levelled and smooth relief, edge file marks and, most importantly, the lack of tool marks on the face reinforce my belief that this tool may have been the product of a casting process alone. Even though one isolated centre-piece might not provide enough solid evidence for a general statement, this tool still throws in doubt the uniqueness and originality of centre-pieces in general. More tools, with similar or additional evidence, need to be found to confirm whether centre-pieces were indeed cast products at certain periods or from a particular source, in the same way as panels from the Low Countries have been (Fogelmark, 1990).

3. The need to reproduce a tool so accurately, as we have seen in *Tool* 20 and *Tool 22,* either by casting or not, demonstrates two possibilities:
    a. The production of bindings by this workshop was high enough to require a duplicate in order to reduce the wear on the original tool.
    b. The bookbinding workshop to which these two tools belonged employed more than one binder who, if they needed to work simultaneously, perhaps needed a copy of certain tools each.

In either case what we learn from these tools is that the workshop that owned them was probably involved in a relatively large production of bindings, of a number that would either require more than one binder to work on, or that would be enough to

wear out a tool. There is nothing to exclude the possibility of both of these happening simultaneously, but there is not enough information from the bindings that have survived that relate to this workshop (either the workshop of *Group 4* or the *"New Library"* workshop, which made use of this tool may be responsible for duplicating the roll) to allow more definitive conclusions.

4. A variety of different types of shank for the rolls has been observed. All of them however are characterised by their short overall lengths, the short and thick double-carriages and the roughly made appearance. It is worth noting that the majority of the shanks are made of wrought iron, as opposed to the wheels themselves which are made exclusively of copper alloys. It is also evident that some of these shanks are improvised and possibly "home-made" solutions, which are clearly of inferior quality to that of their corresponding professionally-made wheels. It is a possibility that many of these shanks were not made by the same tool makers who made the wheels, or perhaps they were added to them at later dates from their time of manufacture.

5. The majority of the tools have shanks which are tapered at one end in order to be attached to a wooden handle. Only two such handles have survived, which look very similar to one another and not as old as the tools and both of which have an improvised feel to them. They were most certainly made by the same person, yet we cannot know if they are replacement handles or original to these tools.

2.6.2 Methods of application

1. Eight wrought iron and copper alloy small hand tools are shaped into a shank with a blunt edge or a protruding flat head. It is strong evidence to suggest that they were made to be hammered or hit with a mallet or similar instrument. This is in contrast to the majority of the tools with shanks which are tapered in order

to be attached to a handle and impressed by hand. The tools with the blunt edges would not need to be heated hence the lack of a wooden handle or way to attach one. It suggests an entirely different technique for tooling in blind that is based on the receptive qualities of damp leather to impressions made with some force. My personal experience from tooling in blind on damp leather with an unheated small hand tool, is that it is perfectly possible to produce a deep and permanent impression by hand-pressure, and even better by hammering or hitting the tool with force that requires much less effort from the binder for an equal effect on the leather. It is a technique that would have allowed the binder/ finisher to work very quickly, as he would not need to wait for his tool to be heated and reheated during the process. Instead he could have impressed his tool very quickly with a single blow. It is certain that tools used in blind by Greek binders were on many occasions used hot (see for example chapter 3.2.3). However, I am inclined to support the speculation (Conroy, 2002) that this may have been a habit adopted after the introduction of gold tooling in the sixteenth century, when tools had to be heated in order to activate the adhesive properties of the egg-white, shellac or other medium traditionally applied to the surface of the leather to adhere the gold leaf. Up until then it seems very probable that small hand tools were made with the intention of being hammered.

2. Based on the above argument, we also ought to question the intended use of some tools and the role of the binder/finisher as a decorator, possibly, of objects other than books covers. It may be the case that the tools impressed with a hammering action were not made solely as decorative tools for bookbinding, but they were used for other decorative arts, such as decorative leatherwork and the punched decoration of metals. Unfortunately, it has not been possible to identify such multiple uses of the tools in this collection on other objects, which means that this speculation cannot be confirmed without further investigation.

3. Three tools have evidence of having been used for gold-tooling. These are *Tool 10* (small hand tool), *Tool 19* (roll) and *Tool 31* (centre-piece). Evidence of only

three out of 42 tools being used for gold-tooling as well as the small number of bindings on which gold tooled impressions of these tools survive demonstrate that gold tooling was the exception rather the norm, as far as these finds are concerned. What is more, the application of gold appears fairly experimental and not well mastered by the finisher who attempted it.

2.6.3 Origin of the finishing tools

The origin of the majority of the tools remains unknown. Apart from being able to speculate on three of the tools, the rest do not offer any substantial evidence. However, *Tool 1* might have been produced by a person at the monastery, judging by the characteristic engraved representation of Moses and the Burning Bush, which was also an established subject in local iconography (Sinai, Byzantium, Russia 2000, p.143). Its rough appearance and mistakes in the engraved motif, may also suggest that it is a "home-made" tool, which is unlikely to have been exported from a professional tool-making workshop. *Tools 20* and *22* also show features that suggest they were made locally. As was discussed in chapter 2.3.3, these two rolls are nearly accurate copies of one another, yet *Tool 22* is an unsuccessful and possibly unused cast copy of *Tool 20*. It is likely to have been produced at the monastery, since there would have been no justification for a specialist workshop to provide a bad casting alongside a good and nearly identical roll. Furthermore, evidence of a fully-functioning forge within the monastery supports this speculation.

2.6.4 *Appearance of the finishing tool finds on bindings*

26 of the tools appear on a total of 234 manuscript bindings and a further 22 bindings of early printed books (pre-1600A.D) from the library that I was able to identify. All of these are Greek, Western or Islamic style bindings on mainly Greek manuscripts and printed books and a few Arabic manuscripts. The co-existence of the tools next to the bindings at the monastery of St Catherine confirms that these bindings were likely to have been made at the monastery or at some place close to it. However, it does not exclude the possibility of their being made at a dependency of the monastery, since books and binders travelled frequently between dependencies. In any case, the relation of the bindings with the monastery is established.

2.6.5 *Dates of the finishing tools*

The relation of the bookbindings and the tools that appear on them has made it possible to date the tools, either accurately or approximately. The earliest of all the tools is *Tool 1* that is estimated to have been made around the end of the fourteenth century. However, analytical methods that were not available during the course of this research project might be able to evaluate scientifically the date of the metal of this tool and possibly prove this to be one of the earliest finishing tools to have survived worldwide.[20]

Tool 2 and *Tool 3* are dated more safely to the end of the fifteenth – beginning of the sixteenth century, based on the notes of several manuscripts from the *"Antioch"* group of bindings on which they are found. *Tool 12* can also be dated safely c.1520-1535, which makes this one of the few tools from the sixteenth century to have survived within these finds. Another is the frequently-encountered fleur-de-lys *Tool 5* that also appears on *"Antioch"* bindings, yet it has mainly survived on the numerous bindings

[20] *Carbon-14 identification,* also known as *radiocarbon dating* is an experimental method for dating metals. Provided that there are traces of carbon in a metal, it can be dated accurately to the time of the forging process.

from the *"Giglio"* group of 1622-1655. The last sixteenth century tool is *Tool 14,* which must have been made c.1589.

A larger number of tools date from the seventeenth century, which also coincides with the appearance of three rolls at the monastery (*Tool 19, 28* and *30),* the earliest of which is *Tool 19,* made possibly not long after 1604A.D. There are also four small hand tools (*Tool 4, 7, 13* and *17),* the earliest one possibly being *Tool 17* from circa 1647A.D., one centre-piece *(Tool 31)* and two corner-pieces (*Tool 34* and *40*), all from the late seventeenth century.

The eighteenth century had naturally more tools to offer, the majority of which are rolls. Three are dated to c.1711 (*Tool 20, 22* and *24*) and a further five to c.1770. One corner-piece (*Tool 33*) and four small hand tools (*Tools 8, 9, 10* and *11*) also appear first on bindings of c.1770.

2.6.6 Time span of tool-use

It has been found that several tools were used by Sinaitic binders at the monastery either throughout, or re-appeared after a time span of up to, 200 years or longer. This observation initially suggests that the binders did not always follow the fashion in motifs that prevailed in Greek binding at different periods. Instead, the same motifs that might have once been fashionable seemed adequate for the decoration of bindings at the monastery several years, if not centuries, later. We may not be sure if this was due to lack of resources or the difficulty of acquiring new tools. It may also have been related more to the clientele of the bindings produced by the monk binders. The majority of the manuscripts bound by Sinaitic binders were made for the needs of the monastery or for its dependencies around it, as many dedications and binder's notes on manuscripts make clear. In the current state of research, we do not know whether bindings were made for a clientele outside the monastery, for few bindings made in Sinai have been identified as being in other collections[21], apart from bindings which left the library in

[21] I have identified several St.Catherine's bindings in the library of the Patriarchate of Alexandria, Egypt, which are discussed in an article due for publication.

more recent years[22]. Had such a clientele existed, it might have had expectations that the decoration of the bindings should conform to contemporary trends. However, as it appears, the choice of tools was not defined by a demanding clientele but by the aesthetics of the binder and the collection of tools that was available to him.

[22] These are individual manuscripts which left the monastery separately in ambiguous conditions, but not large parts of the collection altogether. An example is Benaki MS.70, which I have identified as part of *Group 28,* (see 3.1.2)

PART 3

Part 3 of this volume discusses a total of fifteen bookbinding groups identified from the St Catherine's library and includes the analytical description and photographs of a total of 162 bindings that fall within these groups. Each group corresponds to a specific workshop, this being composed of either an individual binder or an organized enterprise that has been active either within the premises of the monastery or overseas. For this reason the groups have been divided further into two chapters: a) Chapter 3.1 *Bookbinding activity in Sinai* and b) Chapter 3.2 *Imported Bookbindings*.

Eight bookbinding workshops are identified as Sinaitic while seven are groups of imported bindings.Within each of these two entities, the workshops are arranged in chronological order.

In the course of this thesis there have been 70 groups of bindings identified overall, some comprising of only two volumes and some of more than 60 volumes, covering five centuries of bookbinding activity, from different provenances and different bookbinding traditions. However, it has only been possible to present fifteen groups in this thesis for reasons of economy and for consistency in the quality of information provided. Therefore, the fifteen groups have been selected based on their importance for our understanding of the history of the monastic library, on the amount and quality of information that has been possible to extract from notes and codicological evidence in the bindings and on how representative samples of bindings these have been for the bookbinding tradition at the St Catherine's monastery.

In each section describing a group, all the bindings that are relate to it have been reproduced with photographs. The actual size rubbings of the identified tools are also given, and next paleographical notes and codicological information that has proved important for dating or locating the workshop are discussed. An analysis of the structural features and the decorative elements of the bindings follows in order to provide proof that the structures are products of one workshop and also to identify the style of the bindings. Finally, a conclusion in each section summarizes the evidence on the provenance, the date and history of the bookbinding workshop that has derived from the examination of the bindings discussed.

CHAPTER 3.1 – BOOKBINDING ACTIVITY IN SINAI

3.1.1 Group 27

Ha.bi02

Ha.sq03

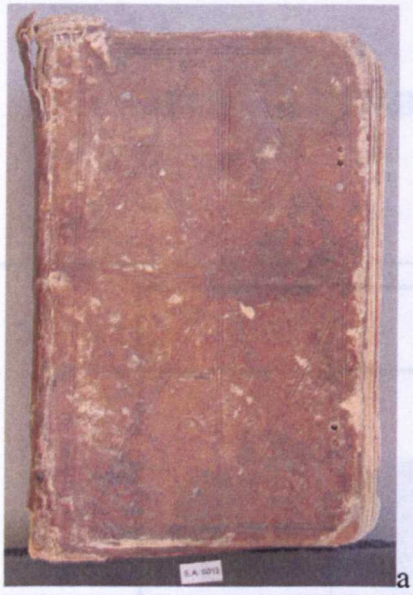
Ha.li04

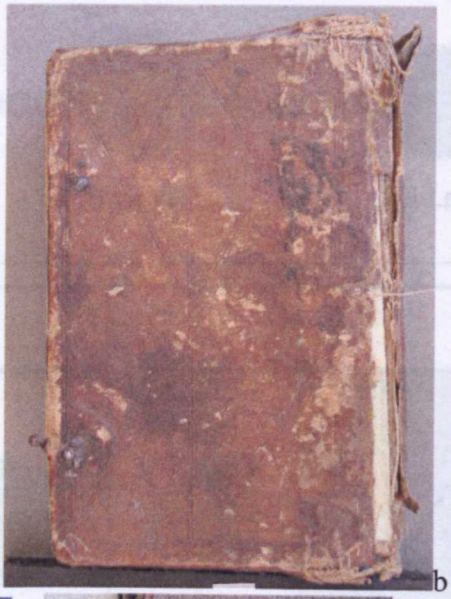
	Tool / Manuscript	1	2	3
				
		Ha.bi02	Ha.li03	Ha.li04
1	S.A. 0013	x		
2	S.A. 0015	x		
3	S.A. 0077	x		
4	S.A. 0275	x	x	
5	S.A. 0331	x		
6	S. 0742	x	x	
7	S. Syr 0083	x	x	x
8	S. Syr 0196	x	?	

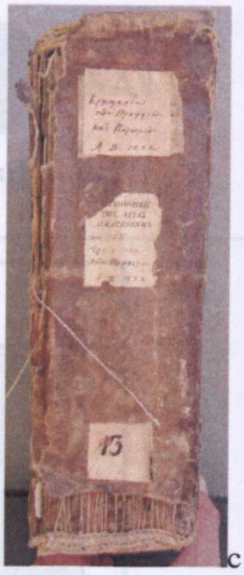
Table 3.1.1- List of finishing tools with their correspondence to the "Bird" bindings.

PHOTOGRAPHS OF BINDINGS IN GROUP 27

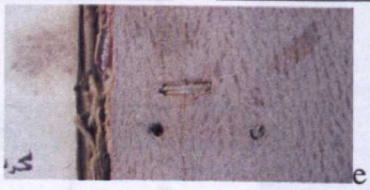
S.A.13


a


b


c


d


e

S.A.15


a


b


c


d

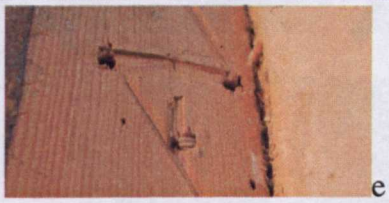
S.A.77


a


b


c


d


e

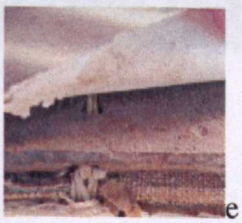
S.A.275


a


b

c

d


e

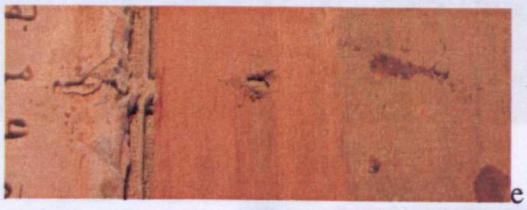
S.A.331


a


b


c


d


e

S.742


a


b


c


d

S.Syr.83

S.Syr.196

3.1.1.1 Introduction

This group of bindings is one of the oldest to have been identified so far within the collection at St Catherine's. It comprises eight very similar bindings, bound in the Greek style, yet only one is on a Greek manuscript. Five of these bindings are on Arabic manuscripts and two on Syriac manuscripts. Out of these there are three *Liturgical* books, (**S.A.13, S.Syr.83, S.Syr196**) one *Pentekostarion* (**S.742**), two books of *Mimars* (**S.A.275** and **S.A.331**), one *New Testament* (**S.A.77**) and one is not known (**S.A.15**).

Examination of the notes found in the manuscripts has revealed that this group is the product of a bookbinding workshop based at or near the monastery of St Catherine's. Most of the manuscripts are dated to the last quarter of the thirteenth-century, yet all of them bear signs of a re-sewing and rebinding process. Investigations of the inscriptions on added sections in one manuscript (**S.742**) and paleographic contributions have helped to date the production of these eight bindings to the end of the fifteenth-century and most probably during the incumbency of Markos III, Archbishop of St Catherine's, c.1486-1510.

3.1.1.2 Paleographical Notes

Seven of the manuscripts are dated to the end of the second half of the thirteenth century. Kamil dates these manuscripts in his catalogue of manuscripts of the St Catherine's library (Kamil, 1970) as follows:

Manuscript	Date
S.A.13	1259
S.A.15	13th c.
S.A.77	1262
S.A.275	13th c.
S.A.331	1278
S.742	1099 +15th c. [1]
S.Syr.83	1292 ?
S.Syr.196	1292

Table 3.1.2- The date of writing of the eight manuscripts

[1] The fifteenth century date refers to a paper section and title page that were added at the time of the manuscript's repair and rebinding. I am indebted to Mr. Agamemnon Tselikas, Director of the Historical and Palaeographical Archive of the National Bank of Greece Cultural Foundation, for his help in dating the handwriting of the text on the added leaves.

As we will discuss later, all eight manuscripts have been re-sewn and rebound, therefore the date of the textblocks is not of any significance as far as the dating of the bindings is concerned, apart from the date of **S.742** which is a composite manuscript of two different textblocks from different dates sewn together.

A few notes in Arabic found in some of the manuscripts have been translated[2] and have been found to contain valuable information.

S.A.275 has a dedication note in Arabic:

> f.1: *"I speak, I am the humble Iohanna uscoph (= bishop) of Sinai. This book was dedicated for the church of Mount Sinai [...] In the name of God, the Son and the Holy Spirit".*

A similar note is found in **S.A.331.**

> f.1: *" I speak, I am the humble Iohanna, bishop of Mount Sinai. The book was donated to the church of Mount Sinai. In the name of God, the Son and the Holy Spirit. [...]"*

A signature by archbishop Ioannis is found in these two manuscripts, next to the above notes in Arabic.:

> f.1: *"Unworthy and humble Ioannis, bishop of the Holy Mount Sinai"*[3]

On another page we read in Arabic:

> f.208v: *"This book was transported from Mother of Antiocheia. [...]. Your slave Makarii monk"*

The ownership notes on **S.A.275** and **S.A.331** provide us with a useful clue. The manuscripts were in the monastery during the tenure of archbishop Ioannis, as his signature confirms. There have been 11 archbishops named Ioannis throughout the history of the monastery (*Σιναϊτικόν Ημερολόγιον*, 1977), the last of which, Ioannis XI was appointed archbishop between 1265 and 1290, a date that fits well with the date of these two manuscripts. We may be certain therefore that **S.A.275** was written by 1290

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[2] I am most grateful to Father Gregorios Sinaitis for helping me with the translations and transcription of the notes in Arabic.

[3] *«Ευτελούς και ταπεινού Ιω(άννη) αρχιεπισκόπου του Αγίου όρους Σινά»*

and was located at the monastery by then. **S.A.331**, which was written in 1278, also came from Antioch to the monastery within the 12 years that followed. In both cases it is certain that the manuscripts were at the monastery by 1290.

S.742 is a parchment manuscript that contains the *Triodion and Pentecostarion*[4]. At the time of its repair a new title page on paper with a decorated headpiece was added by its binder/ restorer along with a whole paper gathering (ff.175-185) with a *Menologion*[5]. The former was added to replace missing parts of the manuscript (f.1v) while the latter is an odd addition with a different text. The style of handwriting and the decoration of the headpiece on f.1v may be dated to the fifteenth-century (see footnote 1).
An inscription in Arabic is found at the top of the same folio. It mentions that it (referring possibly to the making or to the addition of this folio to the manuscript) was made at the time of Archbishop Markos at the monastery of St Catherine. Assuming that our approximate dating of the Greek text to the fifteenth century is correct, then the archbishop referred to is Markos III, 1486-1510[6].

Finally, a series of inscriptions in the same hand are found on the paper left endleaves of the same manuscript. The most significant piece of information contained within these reads:

"Remember, Lord, of your slave Manasis the Cretan".

This note is written in a style similar to that of the added paper gathering and can therefore be attributed to the fifteenth century.

[4] The liturgical book used by the Greek Orthodox Church during the Great Lent (*Triodion*) and extends to the Sunday after All Saints Sunday (*Pentecostarion*)
[5] A list of martyrs according to their feasts throughout the year.
[6] *Markos I (869-870), Markos II (1358 - ?), Markos III (1486-1510),* after *Σιναϊτικόν Ημερολόγιον* 1977, p.41

3.1.1.3 Material and Structural Similarities

a) Endleaves

Only five bindings have surviving endleaves (**S.A.77, S.A.275, S.742, S.Syr.83, S.Syr.196**). The endleaf units and pastedowns of these bindings are in random formats. What relates them however is that most of these are parchment or paper manuscript waste, with texts in Arabic (**S.742, S.Syr.196**), Syriac (**S.742**) and Greek (**S.A.275, S.742**).

b) Sewing

All eight textblocks have been re-sewn, in every case after an overcasting repair to secure the torn spine folds of many gatherings. In addition, the style and threads used for the overcasting repairs in **S.A.331** and **S.Syr.83** look identical (fig.65); a characteristic blue and white twisted thread has been used for the overcasting of the gatherings.

Figure 65 - Detail of the spines of S.Syr.83 (left) and S.A.331 (right), showing overcasting repairs with a blue and white thread and similar board attachment sewing with a bridling technique.

The sewing of the sections is on three or four sewing stations according to the following diagram:

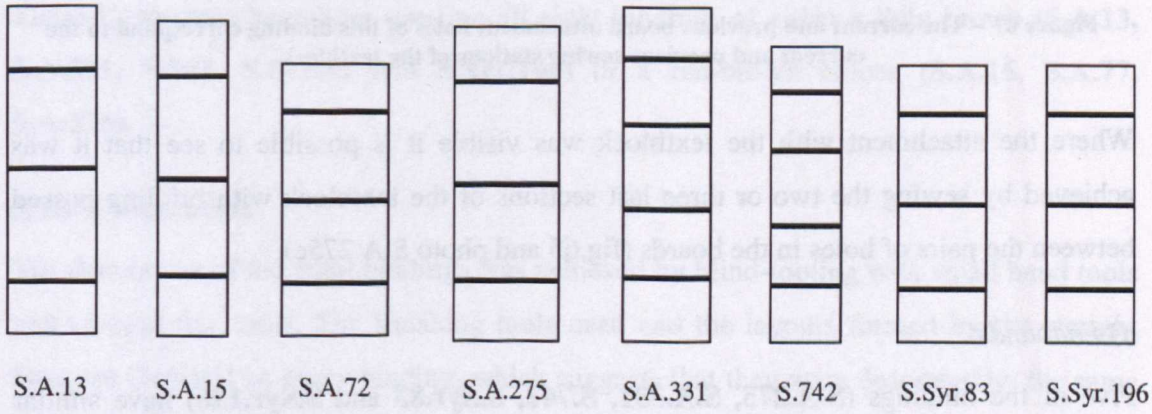


Figure 66 - Diagrams of the sewing stations of the eight bindings in Group 27

It is evident from the number of sewing stations used and the distances between them that there is a consistency across the eight textblocks (fig.66). This fact, along with the identical overcasting repairs suggests that the textblocks must have been sewn by the same binder.

e) Board Attachment

The board attachment systems appear very similar across the eight bindings. The two holes that are drilled in the board to sew the boards to the textblocks are small, close to each another and recessed in a groove (photos S.A.13e, S.A.15d, S.A.77e, S.A.331e, S.Syr.83e). **S.A.15** is a clear example of a binding with reused boards, on which new holes have been made to correspond to the new sewing stations of the textblock (fig.67):

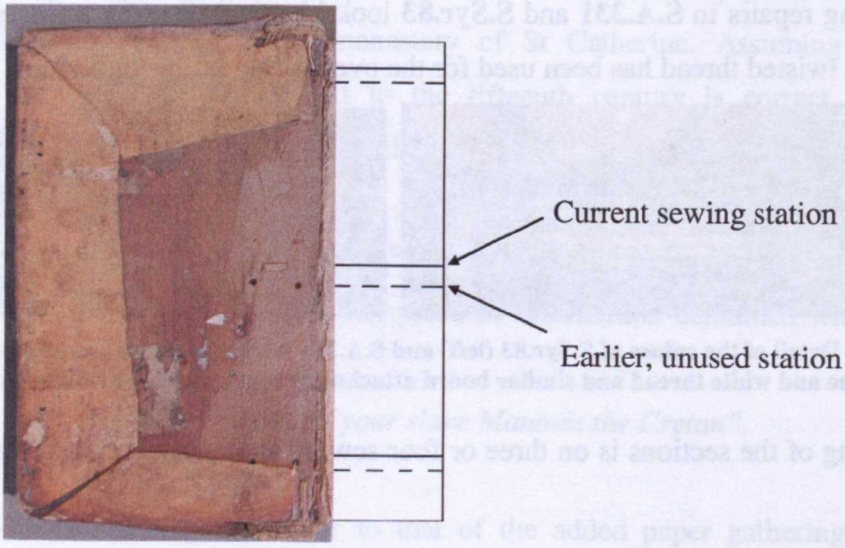


Figure 67 – The current and previous board attachment holes of this binding correspond to the current and previous sewing stations of the textblock

Where the attachment with the textblock was visible it is possible to see that it was achieved by sewing the two or three last sections of the textblock with bridling passed between the pairs of holes in the boards (fig.65 and photo S.A.275e).

d) Endbands

Five of the bindings (**S.A.275, S.A.331, S.742, S.Syr.83** and **S.Syr.196**) have similar simple primary endbands of the Greek single core type (*Tranchefiles Brodées,* 1989, p.52

and Boudalis 2007, p.37), sewn to the boards. An unusual innovation has been executed for the endband of **S.A.13** (photo S.A.13d), which has double endbands of the Greek single-core type. The primary endband is made in the traditional way and on top of it one more core has been added on which another Greek single core endband is worked. This appears as an experimental and innovative approach to creating a Greek endband, yet it is certain that the binder was familiar with the traditional technique of making a Greek single core endband.

S.A.77 (photo S.A.77d) has a Greek single-core endband as above and a secondary chevron-type sewing using red, yellow, white and light blue silk threads, of a type which starts appearing in the fifteenth-century, mainly on bindings from Crete (Boudalis 2004, pp.49-68).

f) Covering

The surviving leather covers are the first covers for these current bindings, and were put on when the manuscripts were repaired. There is evidence of an earlier textile lining on the spine of the textblock of **S.A.15**, which was removed and replaced by a new lining, meaning possibly that there was also a previous cover. The process of adding a new spine lining that extends half way across the width of the boards would have been impossible without removing any covering the binding might have had. It can also be seen, on the seven bindings where the leather covers have survived, that the turning-in of the caps, is shaped perfectly around them. They must therefore belong to the current bindings and are not re-used covers from the earlier bindings.

Tanned goatskins have been used on all eight bindings of either a light brown (**S.A.13, S.A.331, S.742, S.Syr.83** and **S.Syr.196**) or a red-brown colour (**S.A.15, S.A.77, S.A.275**).

3.1.1.4 Decoration

The decoration of the eight bindings was achieved by blind-tooling with small hand tools and straight-line tools. The finishing tools used and the layouts formed by the straight lines are identical on every binding, which suggests that they were decorated by the same person or the same bookbinding workshop.

a) Decorative layout of the covers

The layout that is formed in all eight bindings is C15 (App.V), a rectangle divided into 16 small triangles by a lozenge and a vertical, a horizontal and two diagonal lines. Small, round, hand tools are impressed at every intersection of the straight lines as well as within the triangular spaces. None of the spines has been decorated.

The layout has been formed with straight lines for which a multi-line tool has been identified on two bindings (**S.A.13** and **S.Syr.196**). Triple lines have been used on seven bindings and a two-line creaser only on **S.A.13**.

This type of layout is frequently seen on Greek bindings. Federici & Houlis (1989, p.66) have catalogued it along with the 12 most common layouts recorded from Greek bindings in the Vatican library and it can be found on several published bindings (Regemorter, 1967, pl.XIII, Boudalis, 2004, pp.89, 265-6). In the context of this research, of the decorated bookbindings at St. Catherine's, only 46 Greek bindings have been identified with this pattern, or with close variations of it, such as C14 and C16. This represents 3.8% of the whole collection that is decorated with this layout. The large majority of these 46 bindings date from the early and mid-fifteenth century, while few date from the last quarter of the sixteenth century.

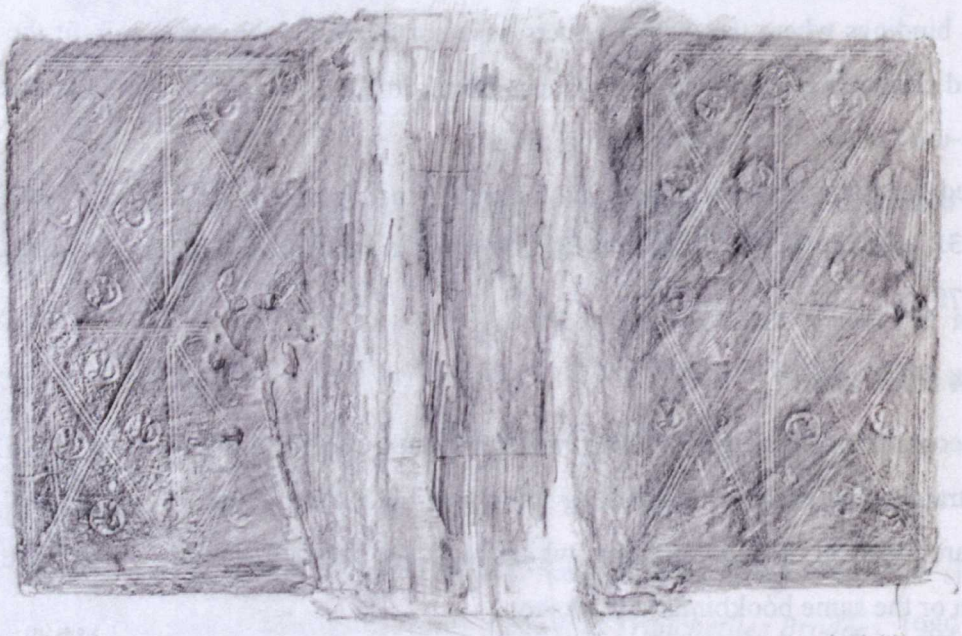


Figure 68 – Full size rubbing of the covers of S.Syr.196

b) Finishing Tools

There are only three tools used for the decoration of these eight bindings and only one appears consistently on every binding (Ha.bi02). One other tool (Ha.li03) appears on four bindings and the last one (Ha.li04) in one single impression.

All three of them are small hand tools of circular shapes, with representations of an animal.

Tool Ha.bi02 has the image of a bird facing backwards. This is not an unusual theme for Greek bindings. Two similar tools (Ha.bi04, Ha.bi05) have been recorded on two fifteenth-century Greek bindings (**S.1659,** c.1442 and **S.936,** possibly late fifteenth century) and three more have been reproduced in Federici & Houlis (1989 from Barb.gr.419, Vat.gr.508 and Barb.gr.581). This particular finishing tool is the main feature of the decoration of this group. Not only does it appear on all bindings, but it is impressed repeatedly on the covering of their boards, in the same locations.

Ha.li03 and Ha.li04 are small, round, hand tools each with a similar representation of a lion that is also familiar as a motif from other Greek bindings in the collection at St Catherine's, which date from the fifteenth-century (Ha.li01, Ha.li02, Ha.li06), yet these particular tools appear only on four bindings of this group. A few similar tools to these are again recorded by Federici & Houlis (1989, p.48).

3.1.1.5 Conclusions

In this chapter it has been possible to demonstrate that eight bindings of Arabic, Syriac and Greek manuscripts have matching decorative and structural characteristics that are considered as products of the same bookbinder or bookbinding workshop.

The evidence that is available through the codicological and paleographic analysis of the manuscripts and their bindings is summarized as follows:

- **S.A.331** is a manuscript that was written in 1278 and which came to the monastery of St Catherine's from Antioch by 1290. It is most unlikely that within those 12 or fewer years this manuscript would be in need of repairs as extensive as those that are described above, which include the overcasting of many torn

sections, re-sewing of the whole textblock, the replacement of a board and the recovering of the binding. It is more probable that the repair of this manuscript and as a consequence the repair and rebinding of all the manuscripts in this group occurred at a later date.

- **S.742** is a parchment manuscript that was repaired extensively by the binder of this group, who also added paper sections to complete missing parts of the manuscript and to include preferred texts within the binding. From the handwriting of the added texts and inscriptions on these leaves, we can date the restoration of this binding and consequently the activity of this bookbinding workshop to the period of the incumbency of Archbishop Markos III, c.1486-1510.
- **S.A.275** and **S.A.331** are both confirmed to have been at the monastery by 1290, one of them coming from Antioch.
- **S.742** is the only Greek manuscript of this group. However, the pastedown on the right board is a piece of parchment manuscript waste of a bilingual text in Arabic and Syriac, which confirms that the person responsible for its binding had access to Arabic and Syriac manuscript waste. **S.A.275** has similar evidence. It is an Arabic manuscript, the right pastedown of which is a folio of parchment manuscript waste, with an early Greek text, possibly dating from the twelfth century. These two examples suggest that the binder worked within an environment where Greek, Arabic and Syriac manuscripts were available, making the monastery of Saint Catherine one of the most likely candidates.

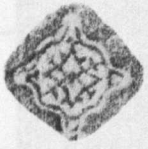
From the above observations we conclude that the repair and rebinding of the manuscripts happened at the monastery of Saint Catherine or a place near to it. Neither the name of the binder, nor anything else about him is known. However, the notes that are written in Arabic on the added leaves, which are contemporary with the rebindings, the Arabic collation numbers, the choice of manuscripts that are repaired (five Arabic, two Syriac and one Greek), as well as the choice of waste manuscript endleaves, offer some clues. It is evident that he was a person who had access to Arabic, Syriac and Greek Christian manuscripts. He was also a person with an

evident experience of the Greek bookbinding tradition, which he mastered adequately although his work cannot be considered of exceptional quality. A likely hypothesis is that the binder was a monk of the monastery. This hypothesis would make this workshop the earliest to have been identified at St Catherine's, along with *Group 31*.

3.1.2 Group 34

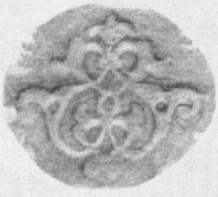
DECORATIVE TOOLS ON THE BINDINGS OF GROUP 34

Ho.it04



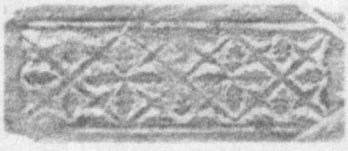
Ho.ao03

Hf.st02



Ho.ao01

Hf.st215



Hf.fe76

Hf.fw13

Ra.oa01

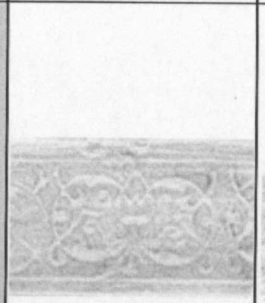
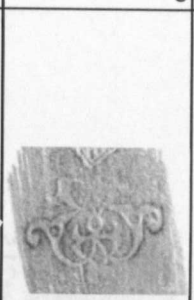
	Tool / Manuscript	1	2	3	4	5	6	7	8
									
		Ho.it04	Ho.ao03	Hf.st02	Hf.st215	Ho.ao01	Hf.fe76	Hf.fw13	Ra.oa01
1	**S. 0329**	x	x	x		x		x	
2	**S. 0341**	x	x	x	x		x	x	
3	**S. 0508**	x	x	x		x			x
4	**S. 0516**	x	x		x				
5	**S. 1597**	x					x		

Table 3.1.3 - List of finishing tools in *Group 34* with their correspondence to the bindings
(Rubbings not in scale)

S.329


a


b


c


d


e


f

S.341


a


b

c

d

e

S.508


a

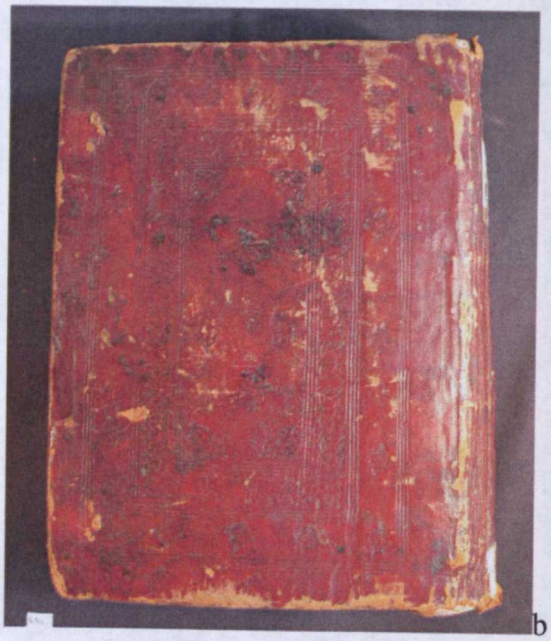
b

c

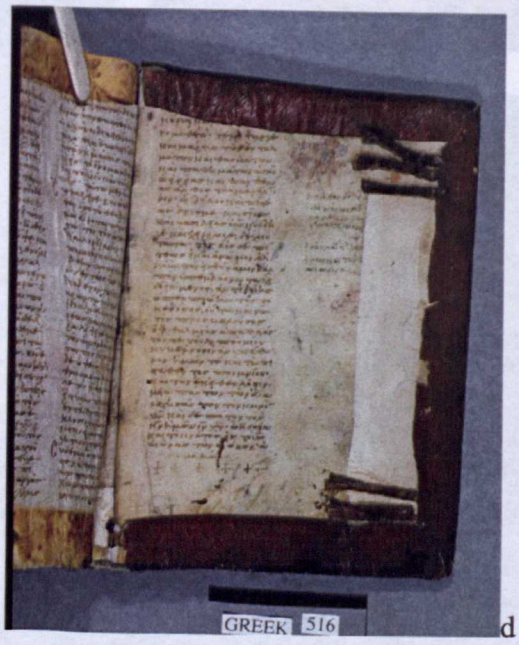
d

S.516

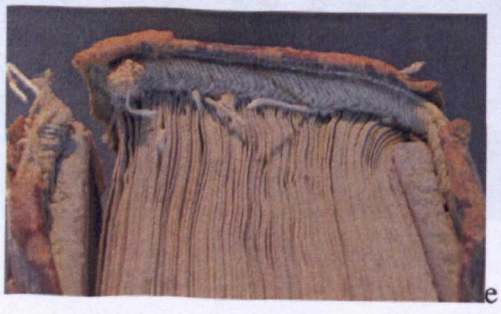

a


b

c



d


e

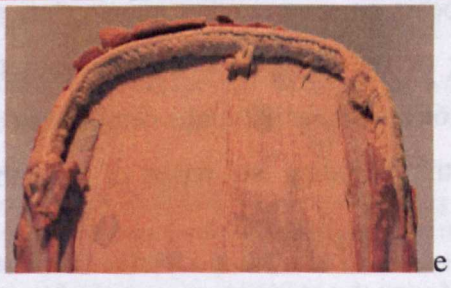
S.1597


a


b


c

d


e

3.1.2.1 Introduction

The group of bindings presented in this chapter consists of five bindings on Greek manuscripts that were made at the monastery of Saint Catherine or by a binder closely related to the monastery. The manuscripts within these bindings contain various texts of the *Lives of the Saints* (**S.508, S.516**) and *Sayings of the Fathers* (**S.329, S.341**), in addition to one *Menologion*[7] (**S.1597**). Apart from **S.1597,** which is a sixteenth century paper manuscript, the other four are old parchment manuscripts that date from the tenth and eleventh centuries. All five of them have been bound at least once before their current bindings, as signs of the previous sewing of their textblocks clearly demonstrate.

The bindings are made with Greek sewn endbands, unsupported sewing and Greek edge-pin fastenings, which signify that the binder responsible for these structures was trained in the Greek binding tradition. However, the decoration of the bindings is made with tools of which the majority have a western - possibly Italian - provenance, arranged in a layout that is also influenced by western patterns.

The date of the workshop cannot be confirmed with confidence, but it would appear to have been in operation towards the first half of the sixteenth century.

3.1.2.2 Paleographic Notes

There is a characteristic absence of first-hand evidence in the form of notes from the binders, ownership notes or other archival evidence to help us date or locate the workshop with accuracy. The dates of the manuscripts themselves are also not helpful, since it is clear that they were completed at an earlier date and their textblocks have been rebound at least once since then. The only evidence that can be extracted from the group is a signature on the inner surface of the left board of **S.508**. The board appears to be contemporary with the binding and shows no evidence of having been reused, from which it may be assumed that the signature is contemporary with or later than the binding. This signature appears on several other manuscripts at the library and it is also often related to rebinding or ownership notes. It belongs to the Archbishop of the monastery Ioasaph (1617-1661) who, as Boudalis demonstrated (Boudalis, 2004, pp.117-118), was responsible for the rebinding and repair of a number of bindings during his

[7] A book that contains the lives of saints that are commemorated throughout the year.

appointment, either by supporting the binding work of monks at the monastery or by being involved with the restoration of books himself.

His signature on this binding signifies, as will be supported further in this chapter, that the binding was in place before his appointment as Archbishop of the monastery.

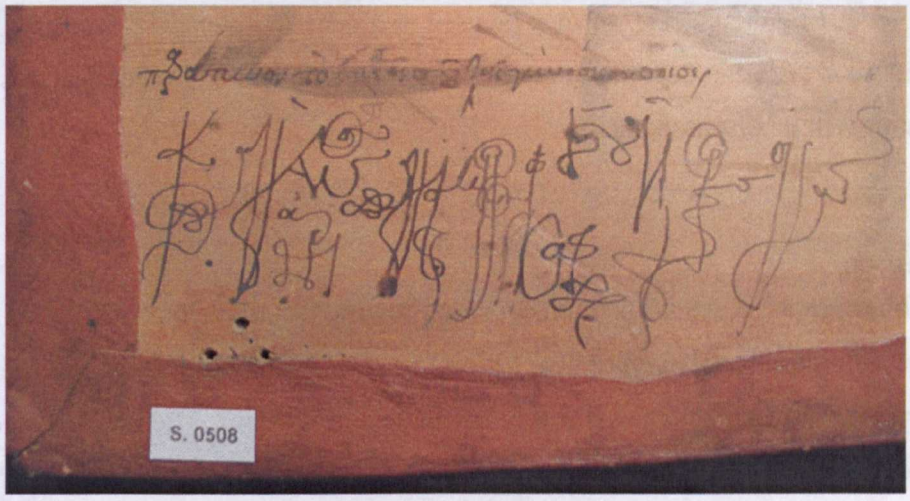


Figure 69 -The signature of Archbishop Ioasaph on the inner surface of the left board of S.508

3.1.2.3 Material and Structural Similarities

a) Endleaves

There are only two bindings (**S.341** and **S.1597**) which have either one or two endleaf units[8], evidence from which is not sufficient to define if there was any pattern or a habit in the way in which the binder made the endleaves. However, there is some information that can be extracted from the pastedown on the right board of **S.341**. It is a remaining half of a paper bi-folio, probably contemporary with the binding, as the textblock sewing stitches are sewn through it, and the fastening straps also pass through it. Raking light has helped to reveal a watermark in this paper, which can be identified as an *anchor in a circle*. Unfortunately, it does not match any of the published watermarks and we cannot date the paper with any accuracy. Nevertheless, this type of watermark is mostly found in

[8] The term endleaf units was introduced by Prof.Nicholas Pickwoad during the survey of the manuscript bindings at St.Catherine's for the Library Conservation Project funded by the St.Catherine's Foundation. According to this conventional term each unit corresponds to all the blank leaves at one end of a textblock, hence in most cases there are two endleaf units in each binding.

papers made between the last quarter of the fifteenth century and the first half of the sixteenth century. Another watermark is found in the right endleaves of **S.1597**. It is a *single column* that could not be identified with published watermarks. However, it resembles those of Briquet 4352 (dat.1457/1476, Perpignon), Piccard 100058 (dat.1458, Torino, Geneva) and Piccard 100059 (dat.1468, Neuenstein). These provide only an estimate for dating this paper, but may be used as a general indication, particularly as this period fits well with the decorative style of the tooled covers and other features of these bindings, as will be discussed below.

b) Sewing

All five bindings are sewn with an unsupported sewing technique on five sewing stations. As all the volumes are relatively tall (283mm to 325mm) and not very different in size, it is no surprise that each has the same number of sewing stations. The threads used for the sewing of the textblocks are also similar in appearance, being all S-ply threads, of medium thickness, possibly made of hemp. The arrangement of and distances between the sewing stations appear similar in all five textblocks, as can be seen from the diagram below, except for the upper stations of **S.516** which show some irregularity (fig.70):

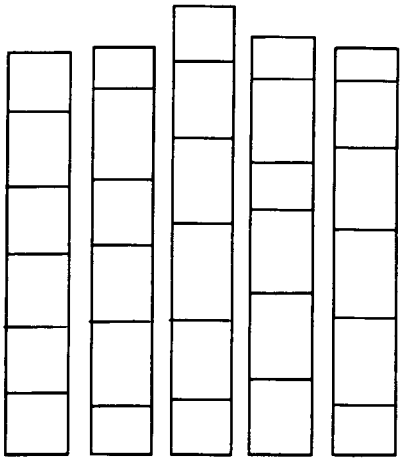


Figure 70 - Drawings of the textblock sewing stations from the manuscripts of Group 34. S.328, S.341, S.508, S.516 and S.1597 (from left to right).

c) Boards and Board attachment

Both boards of each of the bindings are made of thick wood, measuring 10 to 15mm. The type of wood is not easily identified in all of the bindings and it is difficult to be sure if it derives from the same source, based only on visual observation. However, there is a similarity in the method by which they are attached to the textblock. Small holes are

drilled through the board at an angle in two very similar variants, shown in the following diagrams (fig.71):

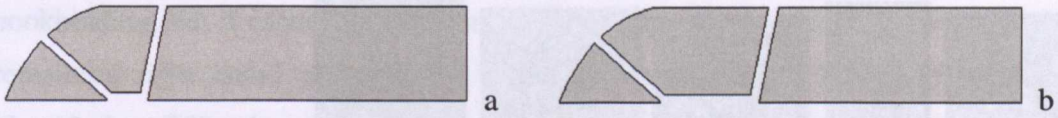


Figure 71 The two board-edge profiles showing the board-attachment tunnels used in this group

It is characteristic that in **S.341** both variants appear in the same board, where the distance between the two holes on the inner surface gradually widens from the top station to the bottom one (see photo S.341d at the beginning of this chapter).

The route that the thread follows on the outer side of the board is not clear. There are several methods recorded in Greek bookbinding, such as the zig-zag pattern, but it has not been possible to confirm which one has been used by the binder of this group.

Only two bindings have boards with edge-grooves.

d) Endbands

One of the most strikingly similar features of these five bindings are the endbands. They are all Greek compound endbands on two cord cores with a crowning core, with the secondary sewing of the *divided chevron and crowning core* type (Boudalis, 2007, p.42). They are worked in an S-ply, natural-coloured and particularly thick thread, possibly made of hemp that appears very similar in all five bindings. The endbands extend over the edges of the boards in the typical Greek manner and are sewn to the boards. This type of endband, according to Boudalis, is a style that appeared very frequently during the sixteenth and seventeenth centuries; however, it has also been recorded on examples dating from as early as the fourteenth century.

e) Covering

The leather used as covers for the five bindings is a reddish goatskin of a similar texture and appearance. Also similar is the way the leather has been turned-in on the inside of the

wooden boards. One corner at each board is butt or open-mitered (**S.1597**) while the other corner has the foredge turn-in over the head/tail. This feature does not have any particular explanation or practical use, but it is a habit that this specific binder appears to have had and which is consistent in the five bindings (fig.72).

Figure 72 - Turn-ins of S.329, S.341, S.508, S.516 and S.1597 (from left to right)

f) Fastenings

All five volumes have identical fastening systems. These are constructed with the typical Greek two edge-pins on the fore-edge side of the left board and triple-braided straps passing through the board and cover on the right board. What is distinct in our bindings though regarding this otherwise common type of fastening is that they are located characteristically towards the head and tail edges of the boards. This is in contrast to most bindings where they are frequently placed more closely towards the centre of the boards, dividing the length of the boards in three approximately equal parts.

3.1.2.4 Decoration

Finishing tools have been impressed in blind on the covers of these five bindings. These tools are the primary evidence which allows us to relate them to a workshop located at the monastery of Saint Catherine, or at one of its dependencies, perhaps in Cairo or in Raithos. The style of decoration is western, both in the motifs of the finishing tools used and in the layout in which these are arranged. Moreover, the majority of the motifs reflects Italian influences and possibly indicates finishing tools which came from Italy.

a) Decorative layout of the covers

There is one predominant pattern used for both boards of four of the bindings. This is identified as pattern A4, a simple layout that consists of concentric frames, filled in between with repeated small hand tools or a roll. This pattern is not unusual in Greek bookbinding, but it cannot be characterized as a typically Greek decorative feature. The remaining right board cover of the mutilated binding **S.508** has a different pattern identified as B23, also made with concentric frames filled in between the frames with small hand tools; the central frame, however, is further divided with two saltire crosses, one above the other. Four of the bindings also have decorated spines, with plain blind-tooled lines. **S.329** has pattern c9, **S.341** and **S.516** have pattern b6 and **S.508** has pattern b1. These three patterns are very close in that they are all based on a saltire cross tooled across the whole spine, from head to tail, differing between them only in the number and layout of horizontal dividing lines tooled through the saltire.

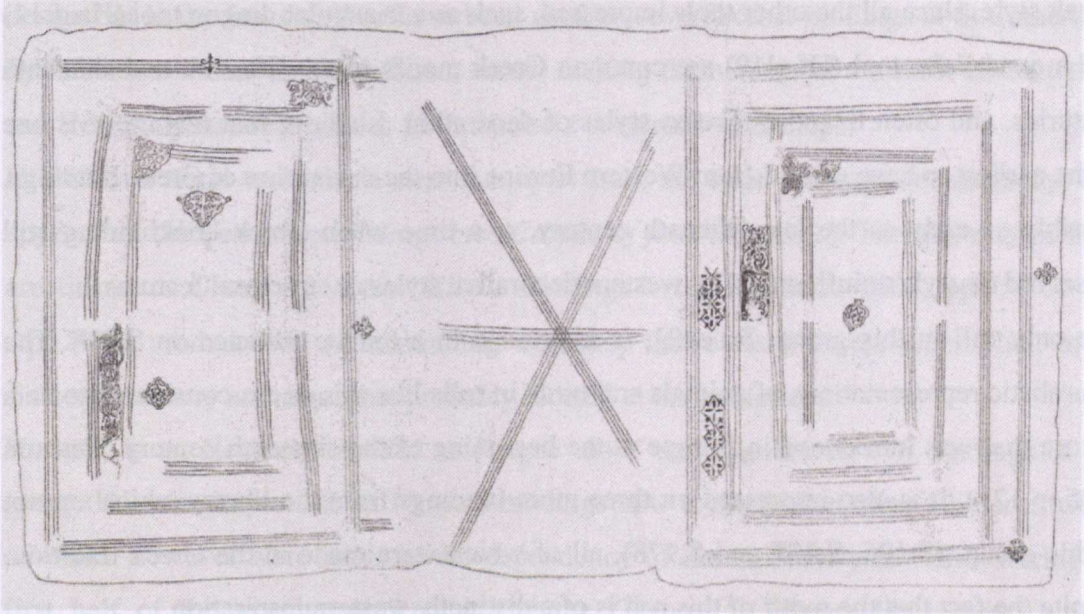


Figure 73 - Drawing of the tooled decoration of S.341

b) Finishing Tools

Eight different finishing tools have been used in total, seven of which are small hand tools and one is a roll. This roll and one other small hand tool are the only intaglio tools.

The tool most frequently used in this group is Ho.it04, which apart from being used on all five bindings, also plays a significant part in their decoration, as it was impressed repeatedly, end to end, filling the space between concentric frames. The tool is of Italian inspiration, and although the motif may have been derived from Islamic sources, it is a typical arabesque design that became very fashionable at the end of the fifteenth century in several Italian cities, from where it spread all over Europe. (Pearson 2005, p.50). Numerous bindings with similar motifs can be found today on fifteenth- and sixteenth-century western bindings, and it seems to be the case that not long after their first appearance in Europe, Greek binders also adopted it for decorating their bindings. It is characteristic that there are six more tools (Ho.it05, Ho.it06, Ho.it16, Ho.it17, Ho.it18 and Ho.it19) with motifs similar to Ho.it04 in the manuscript collection at St Catherine's, the majority of which are used on Greek bindings. A characteristic example is found with tool Ho.it06 on **S.2135,** a binding with clear Greek structural features, possibly originating from Crete. What is more, the decoration of this binding is also made in the Greek style, since all the other tools impressed, such as a triangular dragon tool (Ha.dr11) and a quadrilobe tool (Hf.ql19) are common Greek motifs of the fifteenth and sixteenth centuries, and often linked to Cretan styles of decoration. I believe that this motif is one of the earliest to have moved from Western Europe into the decoration of Greek bindings, possibly as early as the late fifteenth century, at a time when Greek bookbinding still preserved its style uninfluenced by western decorative styles or structural features.

The only roll in this group, Ra.oa01, is impressed in a unique instance on **S.508**. The naturalistic representations of animals and birds in rolls like this one is considered to be a feature that was introduced in Europe at the beginning of the sixteenth century (Pearson 2005, p.121). It is also impressed on three more bindings from the library which are not in this group, (**S.106, S.187** and **S.978**), all of which were made in the Greek tradition, despite the fact that the motif of this roll is of a distinctly western inspiration.

An additional note should be added to these last three bindings (**S.106, S.187** and **S.978**). It appears that the decoration of these is not very different to the decoration of the bindings in our group, since apart from the roll Ra.oa01, they also share tools Hf.st02, Hf.st215 and Ho.ao01. The date of these bindings is not known. **S.106** can roughly be

dated prior to 1569 based on ownership notes that are written on its endleaves, which seem to be contemporary to the binding.
The colour and texture of the leather on their covers also seems significantly similar to our bindings. However, their structures and particular details in the bindings differ from each other as well as from those of our group, although they are all Greek bindings. Therefore it was difficult to prove if they were made by the workshop of *Group 34*. It is possible that they are related, or perhaps that they were bound by different people but decorated in the same workshop. It may also be the case that the decoration was made by different people copying the decoration of our bindings. Whichever the case, we may assume, with some reservation, that these bindings may have been made near the time of *Group 34*, and it is more than likely that they were also made at Sinai.

Three other small hand tools impressed on this group of bindings are worth special attention. These are Hf.st02, Ho.ao01 and Hf.st215 Their distinction does not lie in their design but in the fact that they have been used on several other bindings at St Catherine's by different binders and at different times, making them some of the most characteristic and frequently-used tools from St Catherine's or related workshops.
Hf.st02 is a floral tool with a stem that apart from the three bindings of this group, also appears on thirteen other bindings (see *Corpus of finishing tools*). The majority of these are linked to *Group 30* – the *"Klimis Bindings"* (see Boudalis, 2004, pp.95-107 and App.I 11), produced by a bookbinding workshop that dates from the second half of the sixteenth century and was most probably located at the monastery.
Ho.ao01 is an elegantly stylized arabesque motif that appears on two bindings of this group. It is also impressed on 16 more bindings now at the St Catherine's library, twelve of which however were made at the dependency of the monastery in Cairo, during the first half of the seventeenth century by the *Group 15- "Cairo Metochion"* binders (Boudalis, 2004, pp.151-155 and App.I 5 of this thesis).
Finally, Hf.st215 is a stylized floral tool that appears on eighteen bindings other than the two of this group. The majority of these are related to *Group 31 – "the Antioch Bindings"*, (Boudalis, 2004, pp.69-88) that were made at the monastery between the late fifteenth and middle of the sixteenth century.

A similar and possibly identical tool was used for tooling the straight lines on the five volumes. It is a four-line tool which was either a fillet or a creaser. The evidence from S.1597 (fig.74) shows the tool been impressed with several starts and breaks, which are almost the same in length. This is probably evidence of a creaser, though this cannot be confirmed with confidence.

Figure 74 - Evidence of use of a four-lined fillet or creaser from S.1597

3.1.2.5 Conclusions

In this chapter, five bindings were presented which are linked to each other and attributed to the same bookbinding workshop due to their close decorative and structural similarities. The bindings were made in the Greek fashion, as is revealed by their structural features, such as the Greek-style sewn endbands which project beyond the edges of the boards and the unsupported sewing technique. This may signify that the binder responsible for these structures was either a Greek or someone trained in Greek bookbinding techniques.

However, the blind–tooled decoration of their leather covers is not distinctly Greek in style. Many of the finishing tools used are engraved with motifs which show an Italian influence and are likely to have been imported. How these tools arrived in the hands of the binder is not known, but the various dependencies of the monastery in Italy and Crete, as well as Venice through its link with Crete, are possible sources.

Three small hand-tools (Hf.st02, Ho.ao01 and Ho.ao05) which were used on this group are strong evidence that relates our five bindings to the monastery, either directly with a bookbinding workshop practising within the monastery or indirectly through one of its dependencies in Sinai or Cairo. It is certain that the three tools were part of the same kit of tools when used on these five bindings. However, the fact that beyond their use in this

group Ho.ao01 was used for a certain period at the dependency in Cairo, while Hf.st02 and Hf.st215 were as far as we know used exclusively at the monastery, demonstrates beyond doubt that tools, books and possibly the binders themselves traveled frequently between the monastery and its dependencies. Before and after their use here it is likely that they were either dispersed or that they moved all together between the monastery and Cairo.

It has been difficult to confirm the date of this workshop. From the currently available evidence, we can only place it within a long period within the sixteenth century. The signature found on the board of **S.508,** by Archbishop Ioasaph of St Catherine's monastery, undoubtedly places this binding before 1661, the last year of the appointment of Ioasaph as Archbishop, but this is much later than the estimated date of the workshop. The only other evidence available derives from watermarks in the endleaves. **S.341,** has a watermark which unfortunately has not been matched to published and dated watermarks but the motif of this watermark however, an *anchor within a circle*, was very popular in Italian papers between the end of the fifteenth and the beginning of the sixteenth century. The watermark on the right endleaves of **S.1597** point to a similar period: c.1457-1476. Both these papers seem slightly early to be contemporary with the time the bindings were made, although they could be re-used paper or from a stock of paper that was made available to the binder nearly half a century later.

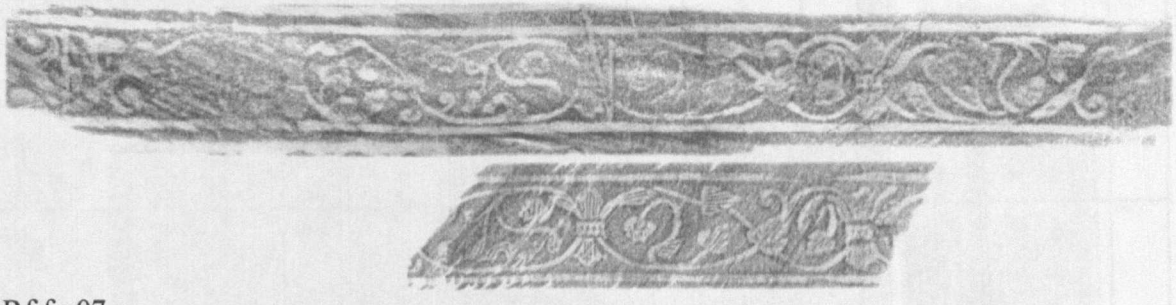
The tooled decoration also indicates a date. Although none of the tools have been related by archival evidence to specific dates, the style of some of the small hand tools, such as Ho.it04, Ho.ao01 and Ra.oa01, relates to early sixteenth-century western tools. The presence of three tools (Hf.st02, Ho.ao01 and Ho.ao05) on bindings of other dated workshops belonging to St Catherine's also gives us a very wide time-frame in which to place this group. This would be from the beginning of the sixteenth century when Hf.st215 appears on an *"Antioch"* binding to the second half of the sixteenth century when Hf.st02 was used by the *"Klimis"* binder (c.1560-1570) and again to the first half of the seventeenth century when the *"Cairo Metochion"* workshop used Ho.ao01.

Therefore, we can assume from the evidence that is given above and the stylistic appearance of the tools and bindings, that this group is placed, with some reservations, to the first half of the sixteenth century.

3.1.3 Group 14

DECORATIVE TOOLS FROM BINDINGS IN GROUP 14

Co.ao11

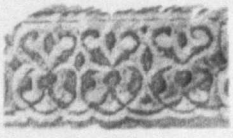


Rf.fw07

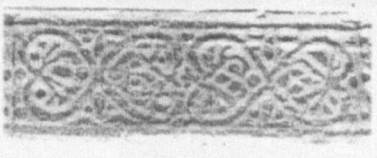
Hf.st03

Hf.st210

Hf.fe88



Hf.fw74



Hf.ql01

Tool / Manuscript	1	2	3	4	5	6	7	8
								
	Hf.st03	Hf.st210	Hf.fe88	Hf.fw74	Hf.ql01	Co.ao11	Rf.fw07	
S. 0015	x	x	x					x
S. 0332	x	x	x	x				x
S. 0357	x	x	x	x				x
S. 0372	x	x	x	x				x
S. 0435	x		x			x		x
S. 0445	x						x	x
S. 0509	x	x	x			x		x
S. 0515	x	x	x	x				x
S. 1158	x	x	x	x	x			x
S. 1336	x	x						x
S. 1599	x	x	x	x	x	x		x
S.1641		x					x	x
S. 1692	x		x					x
S. 1744	x	x					x	x
S. 1791	x	x	x	x	x			x

Table 3.1.4- List of finishing tools in Group 14 with their correspondence to the bindings.

PHOTOGRAPHS OF BINDINGS IN GROUP 14

S.15


a


b

c


d

S.332


a


b

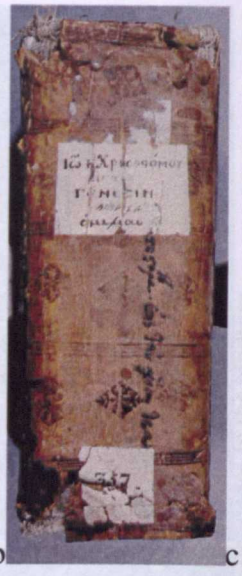
c


d

S.357


a


b


c

d

S.372


a


b

c

d

S.435


a


b

c


d (tail-band)

S.445


a


b


c


d

S.509


a


b

c

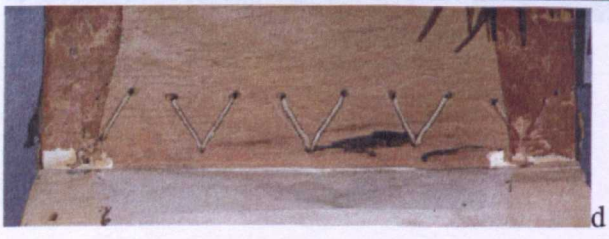

d

S.515


a


b

c


d (left board)


e

S.1158


a

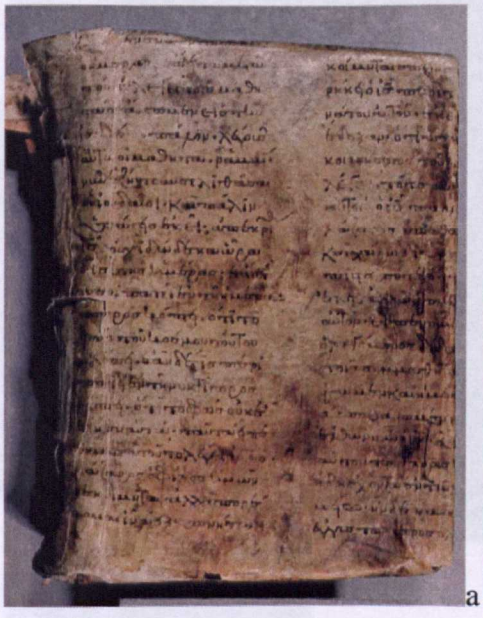

b

c


d


e

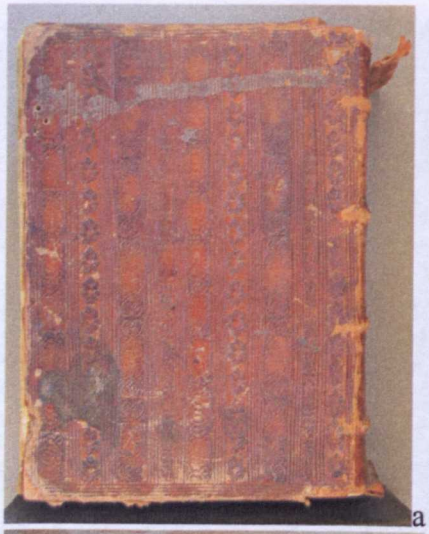
S.1336

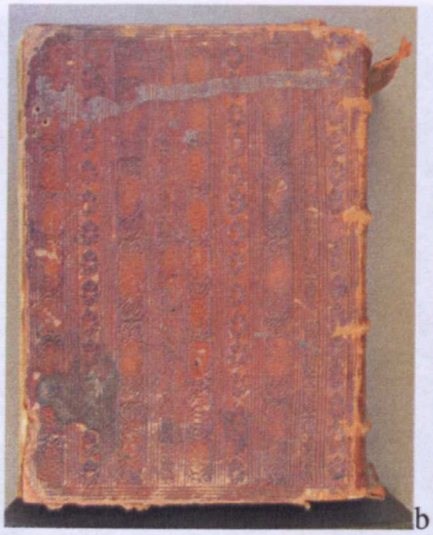

a

b


c

S.1599


a


b


c

d

S.1641

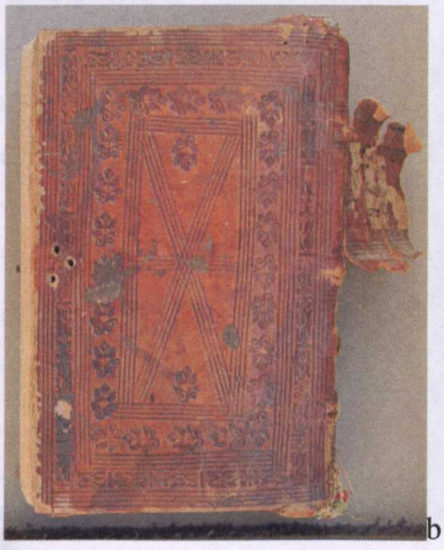

a


b


c

S.1692

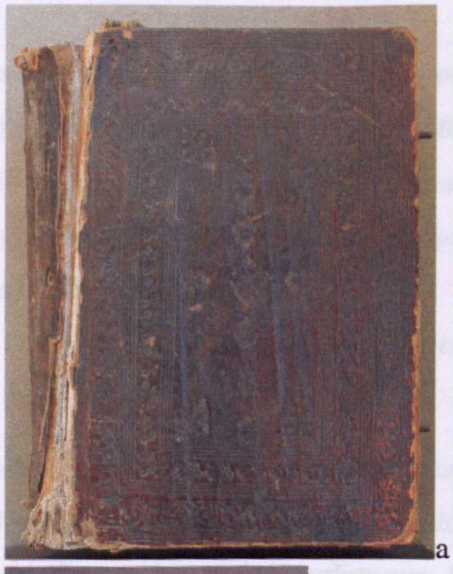

a


b


c

d

S.1744


a


b


c


d

S.1791


a


b


c


d

3.1.3.1 Introduction

This group of bindings consists of 15 bindings on Greek manuscripts, made in both Greek and western-style structures, sometimes combining features of both styles. The leather covers of the bindings are decorated in blind, using the same finishing tools arranged in similar designs;, it is therefore possible to show that they were made by the same binding workshop.

Only one of these bindings is the first binding on a contemporary manuscript (**S.1158**). The rest are re-bindings of older manuscripts that date from the eleventh to the sixteenth-century. The manuscripts have a variety of texts of including *Old Testaments* (**S.15, S.1336**), *Sayings of the Fathers* (**S.332, S.357, S.372, S.1791**), *Ascetica* (**S.435, S.445**), *Lives of Saints* (**S.509, S.515**) one *Kyriakodromion* (**S.1158**), a *Pentekostarion* (**S.1599**), a *Book of Canons* (S.**1641**), a *Theologia* (**S.1692**) and a *Parakletiki* (**S.1744**).

Scribal and ownership notes in some of these manuscripts indicate that they were made locally, from which we can also deduce that they were bound at the monastery or at its dependency in Raithos (El-Tor), during the first quarter of the seventeenth century.

3.1.3.2 Paleographical Notes

The notes that are transcribed from the manuscripts give us a good indication of when and where they were made and also give us information about their binder.

In **S.445** we find a note by the binder himself; however, this page is partly torn and along with the missing piece of the page we have lost part of the information that the binder initially provided. What survives reads:

> **S.445**, left endleaves: *"the present book was bound by [Laurentios ?] monk from Crete"*[9]

The endleaves on which this note is written appear to date from the time that the manuscript was rebound, which would therefore indicate that the note was written by the binder of the current binding and not of an earlier one. From this note we learn the origin and the name of the binder, but unfortunately not the time and place where he worked.

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[9] *«...το παρόν βιβλίον εσταχόθι δια χειρός [Λαυρεντίου;] και μονάχου του κριτός»*

It is a combination with other notes that helps us to understand the location and the approximate time frame of this bindery. The rebound manuscript **S.1336** reads:

> **S.1336, f.329:** *"This Holy book of David was finished in Raithos by myself Germanos, monk from Crete, known as Kontogiannis. In the year from the creation of the world 7072. From the birth of Christ 1564, January 22, Glory to Him. Amen."* [10]

The date 1564 mentioned here is not contemporary with the current binding, since it was rebound after that date. However it mentions Raithos (El-Tor), as the location where it was written, referring most certainly to the dependency of Saint Catherine in Raithos. This fact reinforces a connection with the monastery and raises the possibility that the manuscripts remained in Sinai and that its binding was also made in Sinai.

The binding of **S.1158** is an original binding on a contemporary textblock that dates from 1605. We can assume it was bound not long after that from a note on its right endleaves which reads:

> **S.1158:** *"(1622) This present day, we begun to demolish the refectory in Egypt. Under my authority, Archbishop Ioasaph. And on the feast of Saint Savvas we ate there"* [11]

Archbishop Ioasaph (1617-1660) is a well-documented archbishop of the monastery (Amantos, 1928). He was a binder himself who promoted the restoration, production and care of manuscripts during his appointment. Many ownership and dedication notes to the monastery have been signed by him. (Boudalis, 2004, pp.114-118)

The date given here, 1622, is the *terminus ante quem* for this binding and therefore we can estimate that the rest of the 15 bindings were made at approximately the same period. This is also confirmed by the following note on the endleaves of **S.509**, which suggests that **S.509** was already in this binding in 1681:

> **S.509, right endleaves:** *"The present Paterikon*[12] *belongs to the Holy Mount Sinai and whoever removes it may he be unforgiven. Nicodemos monk Sinaitis, 1681 July."* [13]

---

[10] *«Η Θεία αυτή και ιερά βίβλος του δαυίδ ετελειώθη εν ραιθώ εξ εμού γερμανού ιερομονάχου του κρητός κατά κόσμο κοντογιάννου. Έτει από κτίσεως κόσμου ζοβ'. Από Χριστού δε γεννήσεως αφξδ (1564), ιαννουαρίω κβ' αυτώ η δόξα εις τους αιώνας αμήν.»*

[11] «ζρλ' (1622) Την σήμερον εβάλαμεν αρχήν και εχαλάσαμεν την τράπεζαν της αιγύπτου. Υπ'εμού ιωάσαφ επισκόπου. Κ' τη ημέρα του αγίου σάββα εφάγαμε μέσα.»

[12] A *Paterikon* is a book of the Greek Orthodox Church which constitutes of a collection of sayings and stories of saints and fathers of the church.

3.1.3.3 Material and Structural Similarities

a) Endleaves and watermarks

Ten of these bindings have endleaves that were added at the time of their restoration. Two different watermarks were identified that appear in nine bindings altogether. Unfortunately none of these watermarks could be matched with any similar watermarks from published catalogues and the papers could not, therefore, be dated.

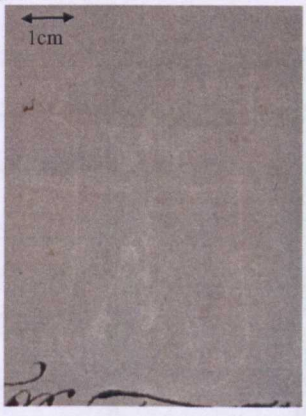
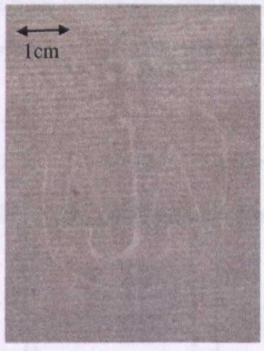
• S.332 and S.372 have an identical watermark of an *armorial shield with a flower and the letter M.* 	• S.435, S.445, S.509, S.515, S.1158 have an identical watermark of an *anchor in circle and trefoil flower above* 

Table 3.1. 5 – The two watermarks were recorded from the endleaves used in ten bindings from this group

The majority of the endleaf units consist of a separate bifolio, with one leaf pasted-down to the board. However, this is not consistent in all the bindings, as endleaves with 2-bifolia, with or without pastedowns, some hooking around the outermost gathering, were also used. Some other endleaf-units have additions of paper stub-guards. These are placed either on the inside or the outside of the endleaf sections in order to reinforce them. In all the bindings, the endleaves are not integral to their textblocks, and as the watermarks shown above have proved, many were made of the same paper.

b) Sewing

The textblocks in this group are characterized by the great variation of their sizes that measure from 175mm to 335mm. All the textblocks have been re-sewn, using new sewing stations,

[13] *«Ετούτω τω πατερικό ήνε του αγίου όρους σινά και ω ξενώσας εστί ασιχώριτως. Νικόδημος ιερομόναχος σιναΐτης. 1681 Ιούλιος»*

apart from **S.1185**, which is in its first binding. Naturally, the number of stations would vary in realtion to the different sizes of the textblocks. However, they also vary because of the different sewing techniques that were employed. Seven bindings were sewn with an unsupported sewing structure, either in single or in double sequence, while the other seven are sewn in a western style, with cord (six bindings) or tanned skin supports (**S.1158**) and change-over kettle stitches.

Nevertheless, across the two sub-groups we notice certain similarities in how the stations are arranged on the textblock spines, according to the size of the textblocks.

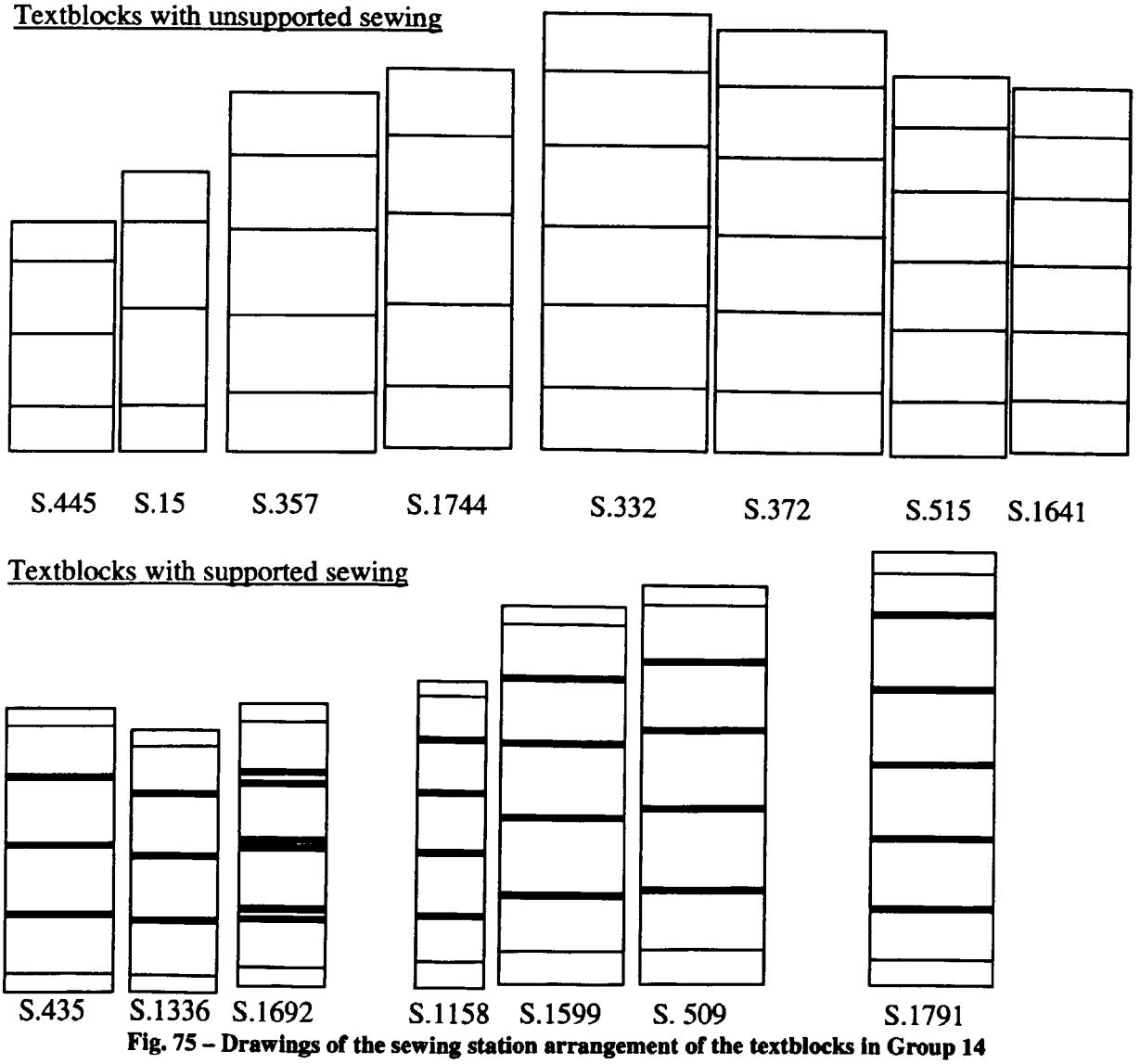


Fig. 75 – Drawings of the sewing station arrangement of the textblocks in Group 14

The above diagrams show that regardless of whether the textblocks were sewn with an unsupported or supported technique, the number of sewing stations is related to the height of the textblocks, with the exception of **S.515**. For the smaller textblocks (175-208mm) three stations were used, four stations for the average textblocks (approximately 215-269mm) and five for the larger ones (285-335mnm)

This fact demonstrates a significant consistency, as it suggests that the same binder may have produced both the unsupported and the supported sewing structures, or that two binders were working closely together.

c) Boards

The boards used on the 15 bindings are not always visibly accessible and it is therefore impossible to be sure if the same types have been used in all cases. What can be identified is the board attachment method, and this is of interest.

There are two types recorded, one which appears consistently on seven of the eight bindings with Greek, unsupported sewing structures (the exception is **S.1641**) and the other on the seven supported sewing structures.

The former bindings have a three-hole, v-shaped pattern through which sewing threads are passed (see photo S.515d) and the latter have their sewing supports laced into the boards, through two drilled holes (photo S.1599d), in a straight line.

d) Endbands

There are 13 bindings with endbands still attached to them (all apart from **S.1599** and **S.1791**), which can be divided broadly into Greek endbands (11 volumes) and western-style endbands (**S.435, S.1158**). The Greek endbands are of two types:

a) a common Greek single-core type (**S.15, S.332, S.357, S.372, S.515, S.1336, S.1641, S.1744**)
b) a Greek single-core with a secondary compact-chevron-and-crowning-core endband (according to the typology of Boudalis, 2007, p.42). (**S.445, S.509, S.1692**)

Fig. 76 - Detail from the endband of S.15, showing the primary core made of twisted threads that appears identical in five bindings.

The primary core of the simple Greek endband type a) is in all the bindings it appears on, apart from that of **S.1744**, a characteristically thick cord, which is made of fine twisted threads. The endbands of **S.1744** have tanned skin cores, as well as the cores of the three bindings with type b) Greek endbands with a secondary endband sewing, while the same silk threads have been used in all these bindings for working the secondary endband sewing: red, blue and white. In both of these types, the endbands extend onto the edges of the boards and are sewn to the boards in the typical Greek manner.

The western endbands are not as consistent. Tanned skin cores were used, and they were worked in a *simple sewn- packed-without-bead* type (**S.435,** Boudalis 2007, p.36), or have a two-colour (red-white) thread primary endband with a front bead (**S.1158,** *Tranchefiles Brodées* 1989, p.30, Modèle 7).

What strikes us regarding the endbands described above is the bindings that they appear on. We would have expected that the Greek endbands that are sewn to their boards would appear only on bindings with an unsupported sewing structure (see previous section *b) Sewing*) and the western endbands on the supported sewing structures. However, there are three bindings that are sewn on supports in the western fashion (**S.509, S.1158, S.1336**) on which a Greek endband is sewn, a feature that demonstrates the hybridizing of techniques executed by the binder/s.

3.1.3.4 Decoration

These 15 bindings have been decorated with small hand tools, one centre-piece, one roll and straight-line tools impressed in blind. The finishing tools used are identical across the bindings and the layouts in which they are arranged are similar on many of them. This suggests that they were decorated by the same person or the same bookbinding workshop that followed a common style of decoration.

a) Decorative layout of the covers

There are four prominent layout patterns tooled on these bindings. These are A3, B4, F8 and J3. Less frequently pattern B3 (**S.445** right), B10 (**S.1692**) and B19 (**S.445** left) are encountered. Seven bindings have the same pattern for both their left and right boards. The

patterns selected for each binding seem to be random, as they do not coincide with the same endband styles or textblock sewing techniques.

Patterns A3, B3, B4, B10 and B19 have previously been recorded on both Greek and western bindings, while their history goes as far back as the twelfth century. They are such common patterns for bookbindings that it is difficult to trace their origins or to attribute influences based on these. On the other hand pattern F8, which appears on three bindings (**S.1158, S.1599, S.1791**), has more distinct origins. It is a design that is based on straight lines tooled in parallel from the head of the board to its tail, in between which small hand tools are repeated close to one another. It has never been recorded on Greek bindings before and as we have noticed already, the three bindings on which it is found have an evidently western character. This pattern, or close variations of it such as with frames around the vertical lines of tooling, are encountered on fifteenth century blind-tooled bindings in Europe, encountered especially in France[14], in the beginning combined with the application of small hand tools (Carvin, 1988, p.98, plate Av.1801 and Cockx-Indestege, Elly & Storm van Leeuwen, Jan, 2005, p.75), or after the last quarter of the fifteenth century with rolls after they were first introduced (fig.77).

Figure 77 - *Horae*, Paris, Simon Vostre, beginning of the sixteenth century, from the Biblioteca Trivulziana, Milan. Photograph taken from Bologna 1999, p.111

[14] Personal communication with Prof Mirjam Foot, 01.02.2010

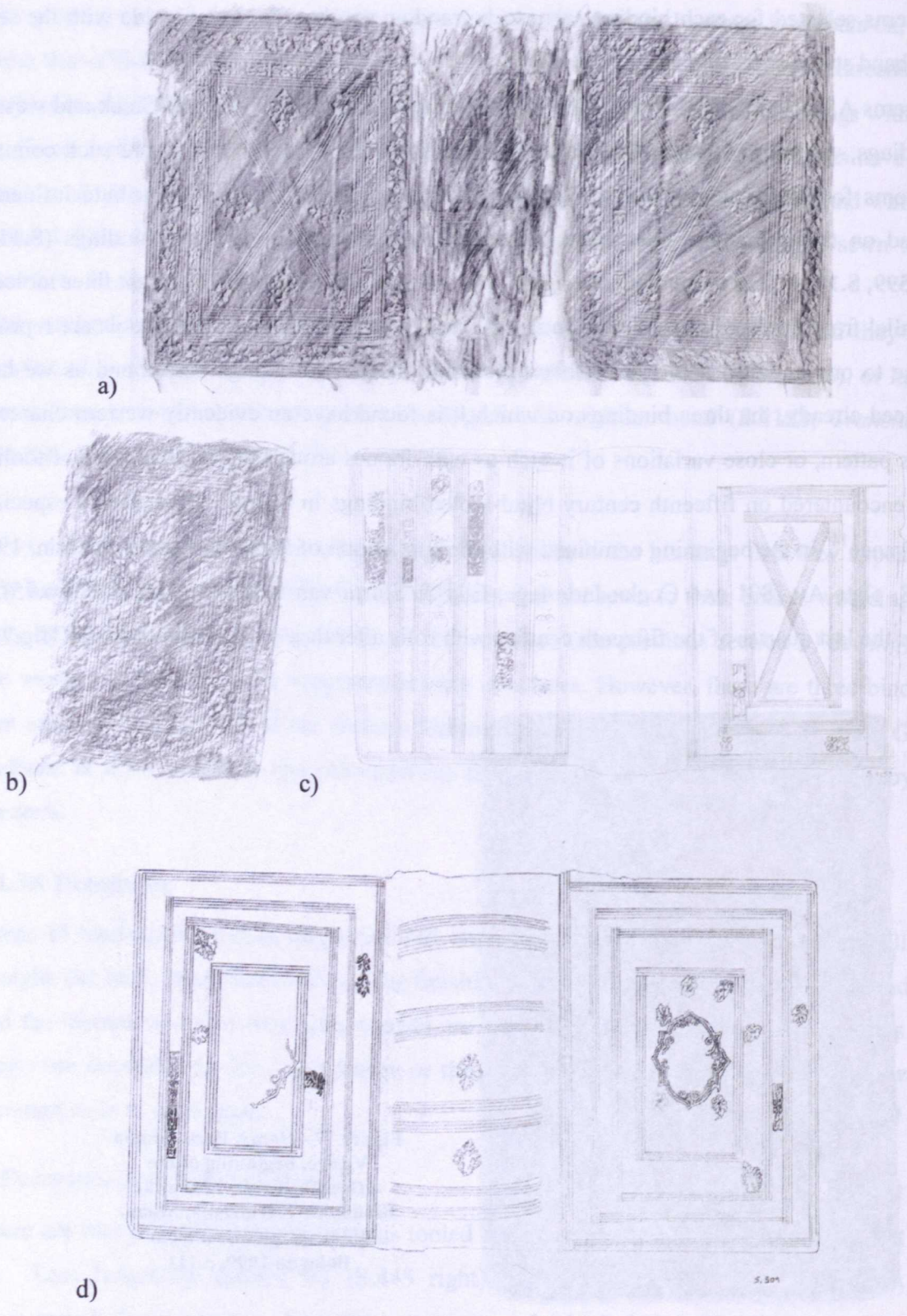


Figure 78 – The four main patterns encountered on the 15 bindings of the group. a) S.15, b) S.1336, c) S.1158, d) S.509

b) Finishing Tools

Seven finishing tools were used in total for the decoration of these bindings. One is a centre-piece, one is a roll and five are small hand tools, all of which were impressed in blind. A deep darkening effect is noticed in most impressions, while in some it appears similar to leather burning. It is likely that the tools were heated prior to being impressed, a practice that was common for the tooling of bindings at the monastery during the eighteenth century (see 2.5.2 and 3.1.6.4), but not recorded in substantial numbers during the seventeenth century.

Four small hand tools appear on seven (Hf.fw74), 11 (Hf.fe08), 12 (Hf.st210) and 14 (Hf.st03) bindings and on every binding at least two or three or four of these tools appear together. This clearly indicates that the decoration of the bindings was executed by the same workshop. The other three tools (Co.ao11, Rf.fw07 and Hf.ql01) appear more randomly on three bindings each.

Co.ao11 is an abstract ornamental, arabesque centre-piece of a type that is found on numerous western bindings in Italy, France, Germany and England, during the sixteenth century. (Hohl, 1989 and Haebler, 1928). 12 more centre-pieces with similar motifs have been recorded in this thesis from bindings in the St Catherine's library collection, most of which appear on eighteenth-century bindings with a few on seventeenth-century bindings, which would make Co.ao11 possibly the earliest use of this arabesque motif found on a St Catherine's binding.

Hf.fe88 is an abstract floral motif that also has a western origin. Similar tools to this appear often in combination with arabesque centre-pieces like Co.ao11 (e.g. EDBD p002007).

Hf.st03 is the most frequently used tool in this group of bindings. It appears on 14 bindings and occupies an important part of their decoration, most frequently by being impressed repeatedly around the frames. It is a tool of western inspiration, like all the tools presented in this chapter.

Hf.ql01 is a quadrilobe floral tool similar to others that we have encountered before, mainly on bindings of the sixteenth century from Crete and South Italy (*3.2.2, 3.2.3* and *3.2.5*). This particular tool appears on three bindings from this group but also on four more bindings from different groups of bindings that are attributed to St Catherine's or its

dependencies in Egypt. (**S.356** of *Group 15,* **S.377** and **S.1417** of *Group 13,* **S.1117** of *Group 31*). **S.356** was discussed by Boudalis (2004, p.151) who attributed it to his "*Cairo Metochion*" bindings, circa 1633. This manuscript bears a note by his binder, on the right endleaves:

> "*In 1633 AD in the month of May, the present Hexaemeros was rebound by Sophronios hierodeacon from Cyprus in the metochion of Egypt* (Cairo)"[15]

S.1417 on the other hand has a binding that as we have seen in *3.1.5 – Group 13* is likely to have been decorated and possibly also bound at the monastery of St Catherine's or at its dependency in Raithos, circa 1665. Finally **S.1117** is a manuscript that was rebound between the end of the 15th century and the middle of the 16th century, by the "*Antioch*" bindery (Boudalis, 2004, pp.69-88) that worked at or near to the monastery. The presence of Hf.ql01 on the above three bindings is proof that this particular tool was circulating between binders and binderies of the monastery and its dependencies in Sinai and Egypt from a much earlier period than the date of the bindings of *Group 14,* but it also helps us to place these bindings in the same geographical location.

The only roll used by the binder of this group, Rf.fw07, has a similar provenance. Besides the three bindings here, it was also used on nine bindings from the "*Cairo Metochion*" bindery and on one binding from *Group 67* (**S.73**), which unfortunately can only be dated roughly to the end of the seventeenth century.

3.1.3.5 Conclusions

In this chapter 14 bindings have been presented and grouped together based on their decorative and structural similarities. At first appearance half of them resemble Greek bindings and the other half western-style bindings. Closer investigation has shown that many of the western-style structures have Greek features, such as the compact-chevron-and-crowning-core endbands, which present us with a distinct example of hybrid structures. However, the use of identical papers for endleaves, the similar endbands and

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[15] «*Τω ζρμα' (7141AM = 1633 AD) κατά μήνα μάιο ο παρόν εξαήμερος εμεταστοχώθι υπο σωφονίου ιεροδ(ιακόνου) του κυπρέου εν μετοχίω της αιγύπτου*». (Boudalis, 2004, p.151)

board attachment methods and the identical finishing tools identified on these bindings confirm that they have been made by the same binder trained in both Greek and western bookbinding styles, or one who was experimenting with both.

The binder has signed one of these manuscripts (**S.445**) as Laurentios monk, from Crete. Judging by the similarities between the 14 bindings discussed, Laurentios must have been the binder of the whole group or taken part in the binding process of many of them.
Although part of the inscription signed by Laurentios has been lost, other notes such as that of **S.1158** date the binding work from circa 1605 to 1622.
The location of the bindery has been more difficult to identify with any certainty. **S.1336** was finished by its scribe at the dependency in Raithos, 60 or more years before it was rebound in its current binding. Raithos therefore remains the place where it was also possibly bound, which should not come as a surprise as we are aware of contemporary binding activity there through a bindery that has produced 21 bindings which survive in the monastery and which was based at the dependency in Raithos between 1652-1689 (Boudalis, 2004, p.183).
Other evidence links these bindings with a bindery active at the dependency of the monastery in Cairo. Two of the finishing tools used to decorate some of our bindings were also recorded on a number of bindings made in Cairo around 1633.
Finally, it was described above that Ioasaph, archbishop of the monastery of Saint Catherine signed an ownership note on one of the manuscripts not long after it was bound, though it is not clear if he did this at the monastery or at the monastery's dependency in Cairo.
From the above evidence two possibilities exist:

a) The bindings were made at the dependency of the monastery in Cairo, after which the tools that were used to decorate them passed to another binder at the dependency who used them in a different context.
b) The bindings were made at the monastery of Saint Catherine or at the dependency in Raithos, after which the tools travelled to Cairo to be used by the *Cairo Metochion* binder.

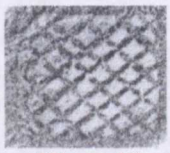
Both scenarios appear equally possible, given the existing evidence. However they both reveal that the transportation of books and/or tools between the monastery and the dependencies in Egypt and the Sinai peninsula was common practice, a fact that we have established as having taken place on several occasions during the life of the monastery.

The fact that another group of bindings is identified as having been made at the same period, during Ioasaph's appointment is interesting and would be worth investigating further. So far we have identified four groups of bindings working at the monastery during the same period, each bearing its unique tools and characteristics, which probably means that a number of binders had their own workshop within the monastery or in direct relation to it through its dependencies.

3.1.4 Group 36

DECORATIVE TOOLS ON THE BINDINGS OF GROUP 36

Ha.et03



Hg.og01

TOOL17

Rf.fw06

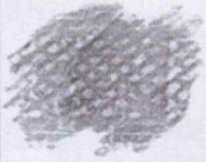
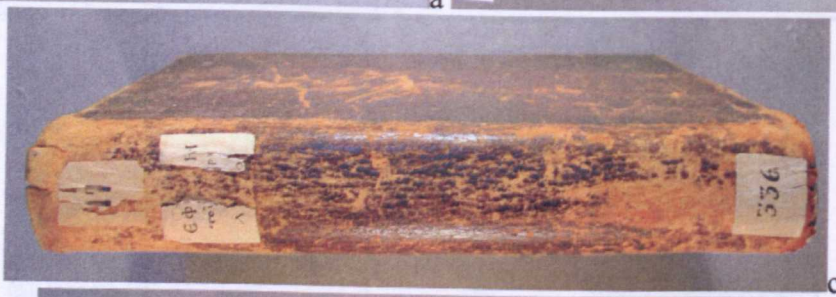
		1	2	3
	Tool / Manuscript			
		Ha.et03	Hg.og01-TOOL 17	Rf.fw06
1	S. 0336	x	x	x
2	S. 0845	x		x
3	S. 1121	x		x
4	S. 2224	x		x

Table 3.1.6- List of finishing tools with their correspondence to the bindings of Group 36.
(Rubbings not in scale)

S.336


a


b



c


d

e

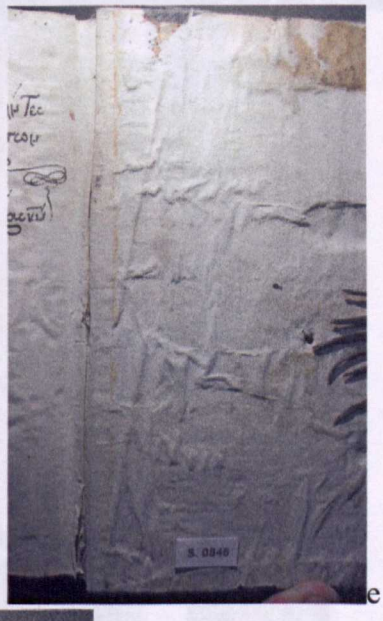
S.845


a


b

c


d



e

f

S.1121


a


b

c


d


e

f

S.2224


a


b


c


d


e

3.1.4.1 Introduction

Group 36 consists of four bindings on Greek manuscripts, two of which (**S.336** and **S.2224**) are contemporary with their manuscripts, while the other two are re-bindings of older paper manuscripts. There is one *Patericon*[16] (**S.336**), one *Theotocarion*[17] (**S.845**), one *Liturgy* (**S.2224**) and one *Book of Canons* (**S.1121**). Three of the four bindings were made in a purely Greek fashion, while one has Islamic characteristics. It is evident from the blind-tooling of these volumes that the decoration was executed by the same person as both the tools used and the layout of the decoration are identical. What distinguishes this group is the fact that one of the finishing tools impressed on the leather covers of these volumes has been identified as one of the finishing tools found at the monastery of St Catherine, based on which we can attribute this workshop either to the monastery or, based on some inscriptions, possibly to the dependency of the monastery in Raithos (El-Tor). Notes on the endleaves and marginal notes in the manuscripts, as well as several identified watermarks have helped to date the bindings to the middle of the seventeenth century, c.1647.

3.1.4.2 Paleographic Notes

A selection of scribal, ownership and other inscriptions in two of the manuscripts have provided substantial information for locating and dating the bindings of this group.

In **S.336** initially we read a note by the scribe who ends the manuscript with a brief colophon:

> *f.252: "The end of the present book , in the year 1647, April 10. The scribe of this (book), an ignorant and blameworthy to God and people. The name of whom is Matthaios, slave of all, unrighteous and petty of the order ..."*[18]

The binding of **S.336** appears to be the first binding for this textblock, as no signs of rebinding or repair work are evident. As will be discussed later, watermarks on the endleaves of this binding also point towards a similar date. Therefore, it may be assumed

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[16] A selection of sayings of the Fathers.

[17] A book of hymns to the Virgin Mary

[18] *«Τέλος του παρόντος βιβλίου εν έτος ζρνε' (1647A.D.) απριλλίου ι'. Ο γράψας ταύτα αμαθής υπάρχει μάλιστα πταίστης του θ(εού) κ' αν(θρώπ)ων. Ματθαίος τούνομα κ' δούλος παντ(ών) αχρίος μικρότατος του τάγματος πέφυκα....»*

that the binding is near contemporary to 1647A.D. Another note on the endleaves states that the book belonged both to the monastery and to its dependency in Raithos (El-Tor):

> *Right endleaf: "The present book belongs to the Holy Mount Sinai and of Raithos (El-Tor) and whoever does not remove this from the monastery may he be blessed by the Holy monastery and the Holy Burning Bush and by the 318 Holy Fathers..."*[19]

On the same page, below this note we read:

> *"The present book belongs to Paisios and after his death to the monastery of Sinai and Raithos (El-Tor)*[20]

Finally, a note that is found on the last of the right endleaves confirms that this binding was already in place by 1686, in addition to providing us with interesting historic evidence:

> *"Of Sofronios monk Sinaite, from Kefallonia, 1686 June 20, the year that was the plague."*[21]

Taken together, these inscriptions demonstrate that **S.336** was bound soon after 1647AD when the manuscript was completed. It is not clear if it was completed at the monastery or if it was imported; however, it was certainly brought to the monastery by 1686, before which it must have been bound.

The notes in manuscript **S.1121** are equally rich in information. On f.314v a frequently encountered signature on Sinaitic manuscripts is identified. It belongs to Ioasaph, the Archbishop of St Catherine's monastery (1617-1660), who apart from signing himself as an Archbishop, also dedicates the manuscript to the dependency of Raithos (El-Tor):

> f.314v: *"Ioasaph [...] Abbot of the Holy and God-walked Mount Sinai. The present (book) is for Raithos (El-Tor) so that it is read by the spiritual Fathers there and no-one should attempt to remove it, for fear of [?] excommunication"*[22]

---

[19] *«Το παρόν βιβλίον είναι του αγίου όρους σινά και της ραϊθού και όστης μη ξενώσας αυτώ εκ της αγίας μονής ταύτης να έχει τας ευχάς του αφίου μοναστηρίου κ' της αγίας βάτου κ' των αγίων 318 θεοφόρων πατέρων...»*

[20] *«του παϊσίου υπάχει το παρόν βιβλίον κ' μετά θάνατον αυτού του μοναστηρίου του σινά κ' της ραϊθού»*

[21] *«σωφρονίου ιερομονάχου σιναϊτη κ' κεφαλλονιότης. 1686 ιουνίου 20, τη χρονιά όπου ήταν η πανούκλα.»*

[22] *«Ιωάσαφ [...] αρχιμαδρίτης του αγίου κ' θεοβαδίστου όρους σινά. Το παρόν δια την ραϊθού δια να διαβάζου(σοι) κ' εκείσε πνευματικοί κ' ουδείς τολμήσοι εκτοξιόσαι εις βάρος του α[...] αφορισμού».*

A few years later the manuscript was still located in Raithos, kept by one of the monks at the dependency and signed by him along with long descriptions of an historic event that is of no significance for this discussion. However, the scribe of the note firstly mentions that the events took place in Raithos and concludes by giving us the date of the events described as 1665.

The endleaf on which this note has been written appears to be contemporary with the binding, from which it can be suggested that the binding is not later than 1665. This date fits well both with Archbishop Ioasaph's period of appointment but also with the estimated date of the binding of **S.336** to c.1647.

3.1.4.3 Material and Structural Similarities

a) Endleaves and watermarks

All four of these bindings have paper endleaves at both ends of their textblocks. None of the watermarks in the four bindings are identical, which suggests that different papers were used for making their endleaves; furthermore, the paper used for two endleaf units of the same binding are different, as is also the format in which they are arranged. However, there is a similarity observed in the format of the endleaves. The left endleaf units of three bindings (**S.336, S.845** and **S.1121**) are made in the same way, according to diagram A (fig.79 A) and their right endleaves also appear similar, consisting of one pastedown and one flyleaf, although it cannot be seen clearly exactly how these three units were constructed (fig.79 B). In addition, it is possible that the right endleaves in **S.1121** originally consisted of two bifolia instead of one.

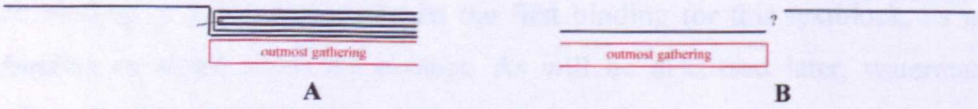


Figure 79 A: the left endleaves on S.336, S.845 and S.1121, B: The right endleaves on S.336, S.845 and S.1121

Regardless of the fact that the watermarks found in the endleaves of the four bindings are different, they offer evidence of the dates they were made. A few of the watermarks were identified approximately with published watermarks from

the collections of Heawood and Piccard. A summary of the watermarks recorded is as follows:

- S.336: *anchor in circle with trefoil leaf above,* similar to Heawood 2, dated 1600
- S.336: *Cross within a tear-drop outline,* approximately during the first half of the seventeenth century, Heawood 945-983
- S.336: *Crossbow in circle and a trefoil above,* unidentified, but possibly first half of seventeenth century (Piccard No.123859-123861)
- S.845: *Hand with five-leaf flower above* similar to a group of watermarks that date from the first quarter of the sixteenth century (Piccard No.155710-155715). It is interesting that all these papers originate from Spain, although it is a motif that was popular throughout Europe.
- S.1121: *Cross within a tear-drop outline,* approximately during the first half of the seventeenth century, Heawood 945-983
- S.2224: *Armorial,* unidentified watermark.
- S.2224: *Cross within a heart-shape,* unidentified watermark

The combination of the notes presented earlier and the approximate date of watermarks compile a coherent time frame for the dates the specific binding workshop must have worked:

Manuscript	**Notes, watermarks**	**Date of binding**
S.336	• Written in 1647. • Ownership by Sinai monk in its current binding in 1686 • Watermarks on endleaves date from the first half of the seventeenth century	1647-1686
S.845	• Watermark dates from early sixteenth century	Rebound since then
S.1121	• Ownership by Raithos monk in 1665 • Signed by Archbishop Ioasaph (1611-1661) • Watermark dates from first half of the seventeenth century	c.1617-1660, certainly pre-1665
S.2224	Unidentified watermarks	Not known

Table 3.1.7 – Notes, watermarks and dates of the four manuscripts in *Group 36*

b) Sewing

The sewing of the four textblocks is unsupported. In **S.2224** it was also possible to identify that this was executed in a single sequence[23]. The number of stations however varies according to the size of the textblock, but is possibly also influenced by the existence of earlier sewing stations which the binder did not want to use, while he avoided piercing his new holes close to earlier holes.

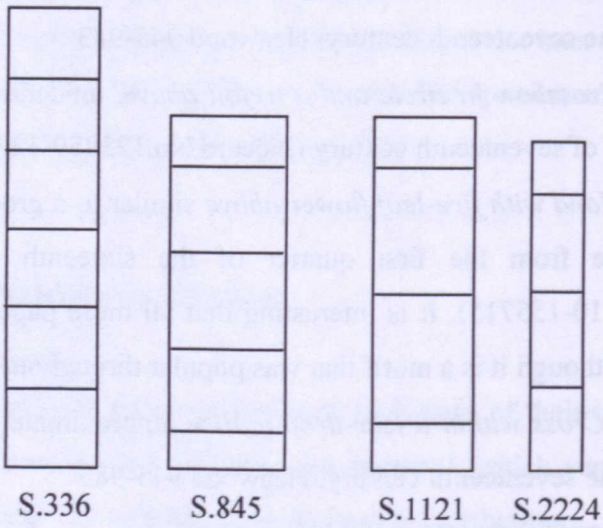


Figure 80 The spines of the four bindings of this group, showing the positions of their sewing stations

c) Boards and Board attachment

The three bindings made in the Greek style (**S.336, S.845** and **S.1121**) have wooden boards measuring between 7 and 9mm thick. They are profiled with an external curve to a narrow point towards their spine edge (fig.81) and with square edges along their other three edges. The fact that they all have pastedowns on both of their boards and a consequent lack of visual access to the boards has made it difficult to establish if the same wood was used. The attachment of the boards of the three Greek bindings was achieved by sewing through

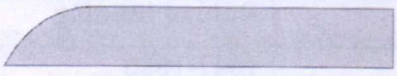


Figure 81 - Board profiles of S.336, S.845 and S.1121

[23] According to the Ligatus Bookbinding Glossary, 2008 single sequence in unsupported sewing is "the sewing that is executed from one end of the textblock to the other in a single unbroken sequence", as opposed to the alternative double sequence where "the sewing is executed in two separate sequences, starting from each board, which results in two separate halves. The halves are then joined by sewing them together in separate operation."

drilled holes in the boards and then sewing around the unsupported sewing of the textblock. The pattern of the passage of the thread through the board is identical in **S.336** and **S.845** (see photo S.845e) with diagonals at the same angles, joined by horizontal lines, while in only the left board of **S.1121** (see photo S.1121e) we observe a small variation, in that the diagonals are at opposite angles

By contrast, the Islamic-style binding of **S.2224** has no sewn attachment of its boards. The boards are made of laminated paper, measuring 2mm in thickness. They are attached to the textblock via the textile spine lining, which is adhered to the inner surfaces of the boards and under the leather cover turn-ins. This is a technique which is common in the Islamic binding tradition and which is in accordance with the overall style of this binding.

d) Endbands

The endbands of the four bindings are made using three different techniques. Only in two of the bindings (**S.845** and **S.1121**) has exactly the same technique been followed, which is a compound endband with plain primary sewing wound around a cord core and a secondary sewing made of two (**S.845**) or three (**S.1121**) colours of silk thread on two cores: the main core and a crowning core, while also forming a front bead (see photos S.845f and S.1121f). Although this endband is more frequently encountered on western bindings, in the case of these two bindings it combines the Greek endband style - as the primary sewing and cores also project over the edges of the boards and are sewn into them in the Greek manner - and the western style secondary sewing. According to Boudalis (2007, p.42) this style of endband *"was introduced into Greek-style bindings around the mid-seventeenth century, the earliest examples being worked on otherwise "genuine" Greek-style bindings, but gradually used exclusively on Western-style bindings"*. These two bindings, which as paleographic evidence has confirmed are dated to the mid-seventeenth century, are yet another proof of this observation.

The endbands on **S.336** are of the *compact chevron and crowing core* type (Boudalis 2007, p.42). The endbands on **S.2224** are Islamic chevrons on warps according to the traditional Islamic style.

3.1.4.4 Decoration

The four bindings discussed are grouped together mainly because of their identical decorative layout, which is built up by tooling repeatedly three identical finishing tools in blind. The use of one of these tools in a characteristic cross-pattern at the center of each board is an obvious similarity that relates the bindings even more strongly. A tool that appears on one of the four bindings is identified as one of the 40 finishing tools that were uncovered at the monastery. Based on this tool, paleographic evidence is reinforced and points towards a bookbinding workshop that worked at or around the monastery of Saint Catherine.

a) Decorative layout of the covers

In three of the four bindings (**S.336, S.845** and **S.1121**) the straight-lines form one main layout for the decoration of the boards. This is identified as pattern A2 for **S.845** and **S.1121** and the very similar A3 for the larger size cover of **S.336**, which consists of two (or three) concentric panels. In between the panels a roll or a small hand tool is impressed all around to create a frame. The decorative layout on the covers of **S.2224** is classified as pattern B3, which is a close variant of the above (see photo S.2224a and S.2224b); in addition to the concentric frames, filled in with impressions of a roll, here the inner frame is also divided by a saltire, which forms four triangular spaces.

The most characteristic part of the decorative layout is formed by the repeated use of a circular, small hand-tool that depicts a double-headed eagle. The tool is impressed five times on each cover of every binding, forming a cross in the space in the inner frame, even on **S.2224** which has a slightly different layout pattern. Only on **S.336** is the tool impressed three times within the inner frame. It is also interesting that the distances between the impressions of the eagle tool are very similar on all four bindings.

b) Finishing Tools

Only three tools have been used to decorate the bindings in this group, a roll and two small hand tools. One of the small hand tools (Hg.og01) appears on only one binding and as a consequence the comparisons of the decoration of the four volumes was based mainly on the impressions of the other two tools, the roll Rf.fw06 and the small hand tool Ha.et03.

The roll Rf.fw06 has a baroque motif with flowers and branches, a type which is found in numerous variants on bindings throughout Europe in the sixteenth and seventeenth centuries. 32 rolls have been identified on bound manuscripts in the library of the St Catherine's monastery, that have motifs similar to Rf.fw06, the majority of which dates from the seventeenth century. In this group, this roll is used exclusively to create concentric frames on the covers. It is a tool however that appears on seven more bindings[24] on St Catherine's manuscripts, the majority of which belong to *Group 16 - "Giglio"* (c.1622-1655, Boudalis 2004, pp.113-155).

The circular tool Ha.et03 is an intaglio tool depicting a double-headed eagle. This motif was often used in the decoration of Greek bookbinding as it was also one of the predominant symbols in Byzantine decorative art in general. Within the context of the current research, 15 further similar tools have been recorded, from bindings dating from the fifteenth up to the seventeenth century. As was described earlier, its use on three of these bindings is very characteristic, impressed repeatedly – three to five times - to form crosses on the covers. This alignment of a single tool is not encountered frequently on Greek book-covers, which is one more reason to believe that these bookbindings were decorated by the same person.

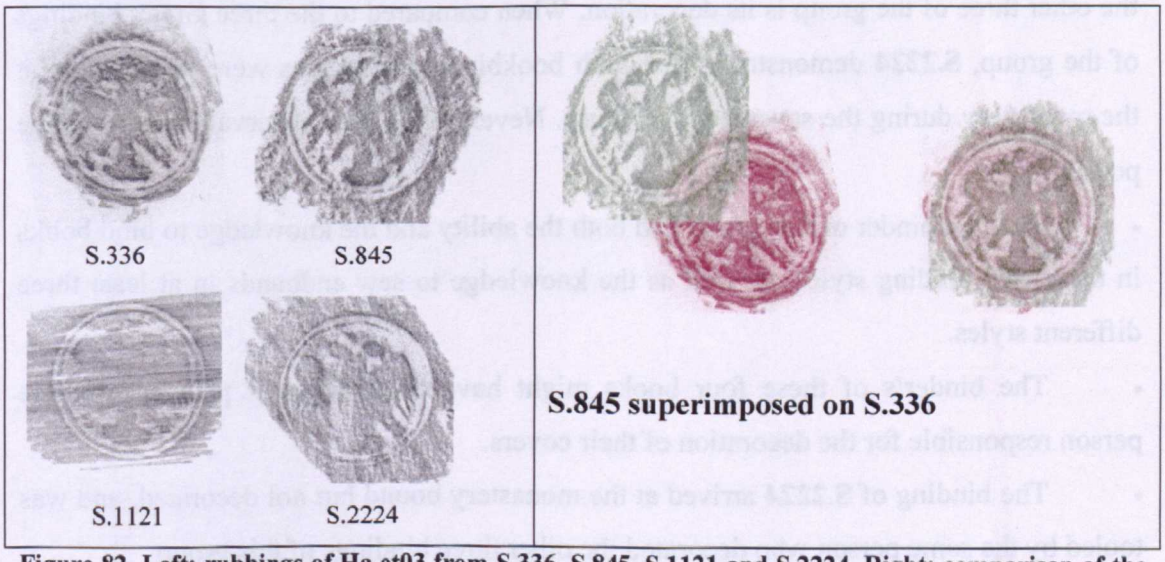


Figure 82. Left: rubbings of Ha.et03 from S.336, S.845, S.1121 and S.2224, Right: comparison of the rubbings of S.845 and S.336

[24] S.46, S.128, S.138, S.615, S.690, S.1832 and S.1921

The other small hand tool, Hg.og01, is recorded from **S.336** only. It has proved revealing for this group, since it is identified as TOOL 17 of the finishing tool finds (2.2.17). The fact that a tool used on books that are preserved at the monastery is also preserved there reinforces the belief that these four bindings are linked to a workshop in or around the monastery or directly related to it.

3.1.4.5 Conclusions

In this chapter four bindings were presented, which have been linked together based on the identical decorative tools that are impressed on their covers in identical layouts and on certain similarities in their structures. Paleographical evidence has helped to date the bindings to between c.1647 and c.1686, while information from inscriptions in the manuscripts, as well as the identification of one tool among the finishing tool finds, also suggests that the workshop responsible for these bindings belonged either to the monastery of Saint Catherine or, possibly, to its dependency in Raithos.

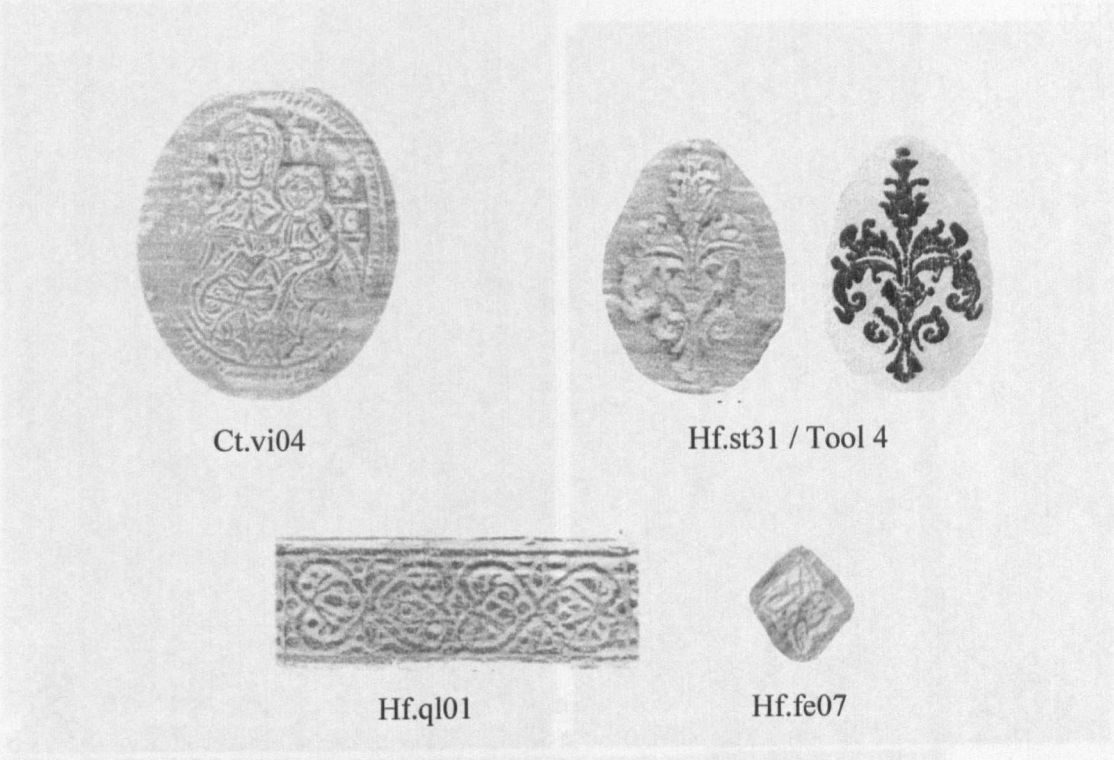
Three of the bindings conform to the Greek binding style, using wooden boards sewn with sewing thread together with the textblock, endbands which are sewn to the boards and smooth rounded spines which are the result of their unsupported sewing. However, one of the four manuscripts is bound in a distinct Islamic style and its only similarity to the other three of the group is its decoration. When compared to the three Greek bindings of the group, **S.2224** demonstrates that both bookbinding traditions were to be found at the monastery during the seventeenth century. Nevertheless, this observation raises three possibilities:

- That the binder of this group had both the ability and the knowledge to bind books in these two binding styles, as well as the knowledge to sew endbands in at least three different styles.
- The binder/s of these four books might have been different people from the person responsible for the decoration of their covers.
- The binding of **S.2224** arrived at the monastery bound but not decorated, and was tooled by the same person who decorated the other three bindings of this group

With the evidence currently available, it is impossible to know which of the above hypotheses may be the right one. We are aware that binders who have worked at the monastery were able to bind books in different styles, such as the monk Simeon Basam, the binder of the *"Giglio"* group (*Group 16*) who also worked around the same period (c.1622-1655 Boudalis, 2004, pp113-155), just as we are also aware that at times more than one binder worked within certain workshops of the monastery. So far, no examples of books bound elsewhere and tooled at the monastery have been identified, although this would not be impossible. Furthermore, areas of the Christian world that would have Christian manuscripts bound in Islamic style are limited. The monastery of Saint Catherine was certainly one such place, as many monks that resided in the monastery came from Arab territories, and may have brought Islamic bookbinding techniques with them.

3.1.5 Group 13

DECORATIVE TOOLS ON THE BINDINGS OF GROUP 13



	Tool / Manuscript	1	2	3	4
		Ct.vi04	Hf.st31	Hf.fe07	Hf.ql01
1	S. 377	x	x	x	x
2	S. 1054	x		x	
3	S. 1417	x	x	x	x

Table 3.1. 8 – List of finishing tools with their correspondence to the bindings of Group 13.

(Rubbings in the table are not in scale)

S.377


a


b

c


d


e

S.1054


a


b


c


d


e

S.1417


a


b

c


d


e

3.1.5.1 Introduction

This group consists of three Greek manuscripts, which have been bound with a mixture of western and Greek-style binding features. One of these manuscripts (**S.377**) is an eleventh century manuscript which was rebound by the workshop of this group, while the other two bindings are the first bindings on their manuscripts. The manuscripts include one *Paterikon* (**S.377**), one *Liturgy* (**S.1054**) and one music manuscript (**S.1417**).

The bindings present some features that conform to western-style seventeenth-century bindings and which share some broad similarities, yet they cannot be characterized as perfectly matching bindings, as they also have some differences between them, particularly the binding of **S.377** which is a hybrid Greek-western binding.

Their blind-tooled decoration however links them strongly, which might imply that they were bound by different people but decorated by the same person or in the same workshop, or that their binder was experimenting with Greek and western hybrid techniques. Evidence from an inscription in one of the bindings suggests that the bindings were decorated and bound by a bookbinding workshop at the monastery around 1665.

3.1.5.2 Paleographical Notes

S.1054 bears a revealing note, based on which we can date and locate these bindings.

> *f.78v: "1665, July 27 completed. Written by me, Matthaios monk at the expense of Pamfoutios. : I, monk Pamfoutios Sinaitis dedicate the Holy Liturgy to the church of Raithos, [...] and whoever removes this, may he become stranger to the Holy Trinity."*[25]

This manuscript was therefore written by a monk at the monastery of St Catherine's in Sinai or at the monastery's dependency in Raithos, in the year 1665. Its binding is the first for this manuscript and probably contemporary with it, as there is no evidence to suggest it was rebound at any time; it should therefore be dated to approximately the same time.

---

[25] «αχξε' Μηνί Ιουλίου κζ' πέρας λαβών. Εγράφη υπεμού Μ(α)τθ(αί)ου ιερομονάχου δια δαπάνης Παμφουτίου α.χ.: εγώ Παμφούτιος μοναχός σιναΐτης αφιερόνω αυτ(η) την θείαν λειτουργίαν εν τω τεμένει της Ραΐθού εις υπουργίαν της θείας μυσταγωγίας εις μνημόσυνον εμοί κι ο ξενώσας έστω ξένος της αγίας τριάδος" .»

An ownership note in **S.1417** confirms the above date as the date for this binding group. At the bottom of f.1 we read:

f.1: "from (the collection of) monk Gerasimos Yalinas Sinaitis from Crete"[26]

This note is particularly informative since Gerasimos Yalinas is a well-known monk, a scribe of music manuscripts and a collector of manuscripts. He originated from and lived in Crete, as a monk at the dependency of the monastery of Saint Catherine in Handakas, for a certain period until the fall of Crete to the Turks in 1669. After this date the dependency was abandoned and many of the manuscripts that were kept and/or produced there were transferred either to other dependencies of the Saint Catherine's monastery or to the monastery itself. Among those that came to the monastery there is a number of music manuscripts by Yalinas, many of which also constitute an homogenous bookbinding group, dated 1658-1661 (see, App.II 8- *Group 24*). The signature of Yalinas in **S.1417** therefore confirms that the manuscript was written and its binding was most likely already in place too, around the period of Yalinas's activity as book collector.

3.1.5.3 Material and Structural Similarities

The three bindings of this group have structures that cannot be considered as identical since they have several differences between them. **S.377** is a Greek binding with clearly different characteristics to those of **S.1054** and **S.1417**, which conform to western techniques.

a) Endleaves and watermarks

None of the endleaf formats is identical across the three bindings. What is more, on **S.377** parchment manuscript waste is used, **S.1054** has endleaves made of the same paper as the textblock and **S.1417** has paper endleaves of different format and material.

[26] «εκ των του Γερασίμου ιερομονάχου Γιαλινά Σιναΐτου του Κρητός»

b) Sewing

S.377 is a hybrid Greek-western binding, sewn with an unsupported sewing structure on four stations. Overcasting repairs at the section spine-folds show evidence of extensive restoration work on this binding. **S.1054** and **S.1417** on the other hand have supported sewing structures, both sewn on three single cords, using what visually appears as the same thin Z-ply sewing thread.

c) Boards

The binding of **S.377** has thick wooden boards, which are attached to the textblock by means of sewing with bridling around the unsupported sewing of the textblock, as it is common in Greek bookbinding. The bindings of **S.1054** and **S.1417** have thin paper boards, which have been attached to the textblock by means of lacing in of their three cord supports.

d) Endbands

These are not typically Greek in either of the three bindings, not even for **S.377** which is Greek in all other parts of its structure. The endbands of **S.377** and **S.1054** are of the *sewn-with-front-bead-and-crowning-core* type according to the typology of Boudalis (2007, p.43) although worked with only one colour of silk thread. They do not project over the edges of the boards in the Greek manner nor are they sewn to them, but seem to have been pasted to the outer side of the boards. This type of endband is often found on Greek-hybrid bindings from the mid-seventeenth century onwards. What is more, two bindings from *Group 36* (c.1647), seven from *Group 57* (c.1704-1727) and three from *Group 12* (early eighteenth century) have been identified in this thesis with the same type of endband as well as 10 more bindings from the *"New Library"* workshop (c.1711-1790) that Boudalis identified (Boudalis, 2004, pp.213-233). **S.1417** has a very close variant of this endband, which is a compound endband with secondary sewing, sewn with a front bead but without a crowning core. The colours of the threads across the three bindings are different.

e) Covering

The skins used for the three bindings are most likely of different origin. **S.377** has a light brown sheep skin, while **S.1054** and **S.1417** have both goat skins of a reddish hue, but of slightly different textures. However, it is characteristic that the turn-ins of **S.377** and those of **S.1417** are similar, with the head and tail turn-ins pasted over the foredge turn-ins. **S.1054** is slightly different in that it has mixed turn-in arrangements.

f) *Textblock edges*

The textblock edges of two of the three bindings are decorated. **S.1054** has painted floral patterns using red, black and green ink, while **S.1417** has solid red-coloured edges. It is difficult to assume if these textblock edges were decorated by the same person.

3.1.5.4 Decoration

Regardless of the fact that the structures of the three bindings, and especially that of **S.377**, are not identical in every aspect, the layouts of their decoration are similar, while the finishing tools used on them are identical.

a) Decorative layout of the covers

Two layouts are distinguished on the three bindings. **S.377** and **S.1417** have layout J16, which is formed of two concentric frames. Within the inner frame straight lines form a diamond shape and a centre-piece is tooled at the centre of it. Between the two concentric frames a small hand tool is impressed repeatedly and other small hand tools fill the spaces between and around the frames. **S.1054** has a layout that is classified as J13. Again there are two concentric frames, at the centre of which there is a centre-piece. There is no diamond shape in the inner frame; instead a small hand tool is impressed repeatedly to form a cross around the centre-piece, while the same tool is also impressed as a corner tool.

b) Finishing Tools

There are only four tools recorded on the three bindings of this group. One is a centre-piece and the other three are small hand tools. Two of these tools are impressed on all three bindings and the other two tools appear only on **S.377** and **S.1417** (see table 3.1.8).

The centre-piece Ct.vi04, is a small oval tool that carries a typical representation of the Virgin Mary holding Christ. This tool appears on only three bindings of this group and on no others from the St Catherine's collection. The only other similar tool to this recorded in this thesis is tool 80, for which unfortunately we do not have a date.

The impression of tool Hf.st31 provides us with strong evidence regarding the Sinaitic origin of this workshop. The impressions on S.377 and **S.1417** were made by TOOL 4, which is one of the discovered finishing tools (2.2.4) that was found impressed on altogether six bindings[27] surviving today in the library at St Catherine's.

Hf.ql01 is another tool which provides us with substantial evidence to link this group to Sinai. It is a tool that was preferred by several binders from different workshops that were active either at the monastery or at its dependency in Cairo. Five more bindings, other than the two of this group, are testimony to how this tool was used for 100 years or longer. It appears on **S.356** from *Group 15,* (c.1633), on **S.1117** from *Group 31* (c.1469-1543) and on **S.1158, S.1599** and **S.1791** from *Group 14* (c.1605-1622). These last bindings are confirmed to have been made at the monastery or at its dependency in Cairo, a fact that supports that the three bindings of this group are also related to the monastery.

3.1.5.5 Conclusions

At first sight the three bindings presented in this group would not appear to be related. The binding of **S.377** is mainly Greek, with a western type of endband common on Greek bindings of the seventeenth century. The bindings of **S.1054** and **S.1417** are both western in style, as they are sewn on supports and they have western endbands, not very dissimilar to those of **S.377.** However, the only significant structural similarity that is observed is the thread used for the sewing of **S.1054** and **S.1417,** as well as their board attachment.

The structural differences in the bindings of this group, particularly those on **S.377**, are difficult to explain. Two possibilities may be given:

- The binder of this group was clearly trained in both Greek and western bookbinding, and chose to bind books in different styles according to taste.

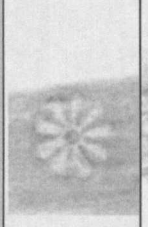
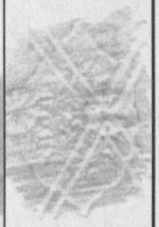
[27] Other than the three bindings of this group these are S.992 and S.1931 of *Group 68* (c.1675) and S.1108.

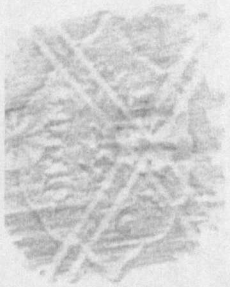
- The binding of **S.377** was repaired but it did not undergo a complete restoration. A number of sections were repaired with overcasting but the sewing was not removed. The same original wooden boards were used and attached in the same way – although it is not clear if the current attachment is a repair or original - therefore the style of the binding was not altered. The endbands must have been added at this point of the restoration work, as well as the cover, which was decorated with the same tools as the other two bindings of the group.

Nevertheless, the decoration of the three bindings is significantly similar. The same four finishing tools were used, in identical (**S.377** and **S.1417**) or similar (**S.1054**) layouts which are undoubtedly proof that the same workshop was responsible for their decoration.

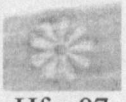
The tools used also suggest that this workshop was based at the monastery of Saint Catherine, or perhaps at one of its dependencies in Cairo or Raithos, as the same tools were used on several other St Catherine's bindings of the same period. Furthermore, paleographical evidence, such as the colophon on **S.1054** and an ownership note on **S.1417** has made it possible to date this workshop to c.1665.

3.1.6 Group 57

	Tool / Manuscript	1  Hf.rs07	2  Unidentified
1	S.81	x	
2	S.400	x	
3	S.540	x	
4	S.686	x	
5	S.705	x	
6	S.841	x	
7	S.1056	x	x
8	S.1057	x	
9	S.1090	x	
10	S.1210	x	
11	S.1711	x	
12	S.1779	x	
13	S.1812	x	
14	S.1871	x	
15	S.1918	x	
16	S.2125	x	
17	S.2170	x	
18	S.2289	x	



Unidentified tool



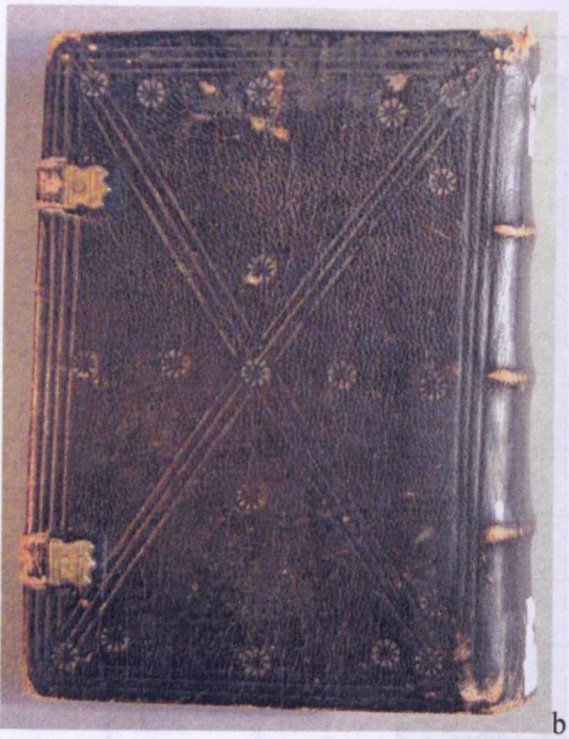
Hf.rs07

Table 3.1.9 - List of finishing tools with their correspondence to the bindings of *Group 57*.

PHOTOGRAPHS OF BINDINGS IN GROUP 57

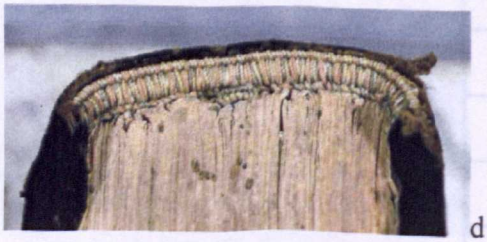
S.81

a



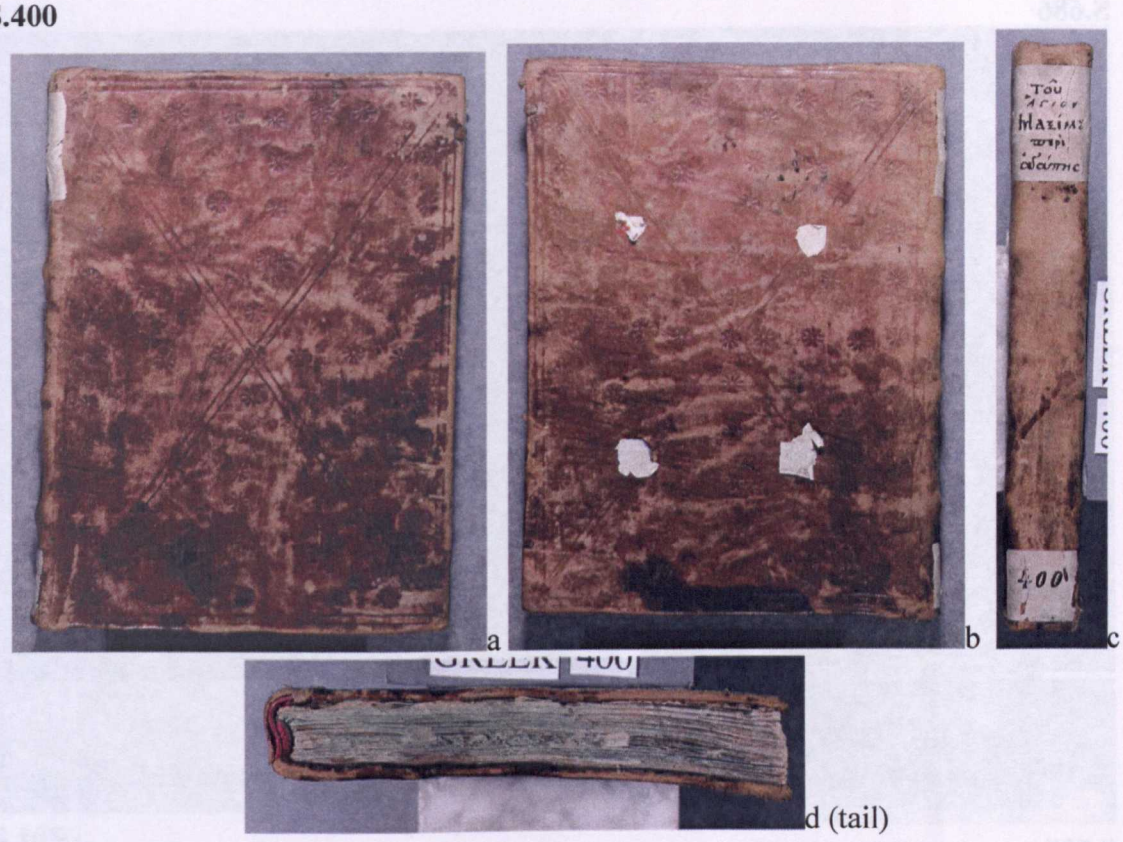
b

c



d

S.400



a b c

d (tail)

S.540

a b c

d (head)

S.686

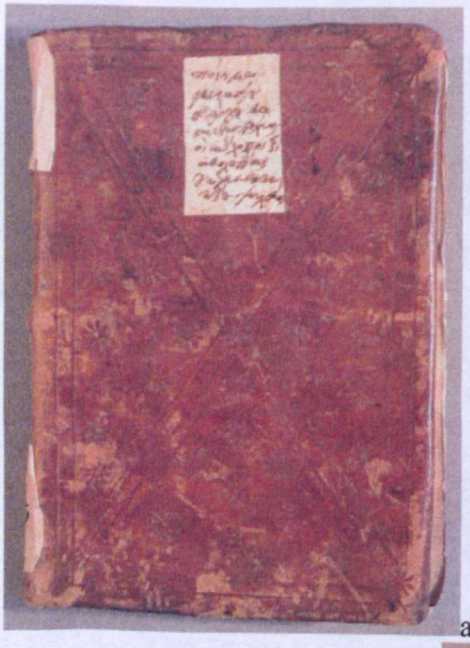

a


b

c


d (tail)

S.705


a


b

c


d

S.841


a


b

c


d-TAIL


e

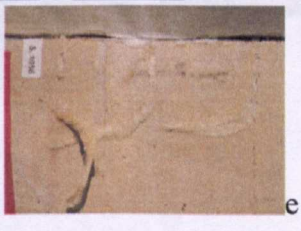
S.1056


a


b

c

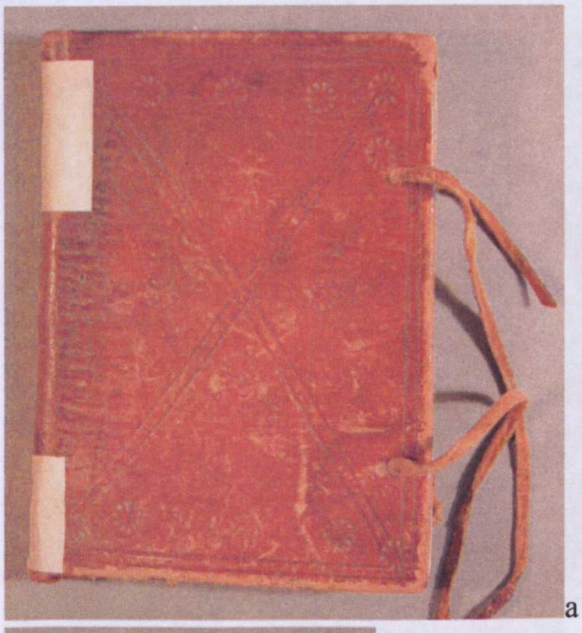

d (tail)

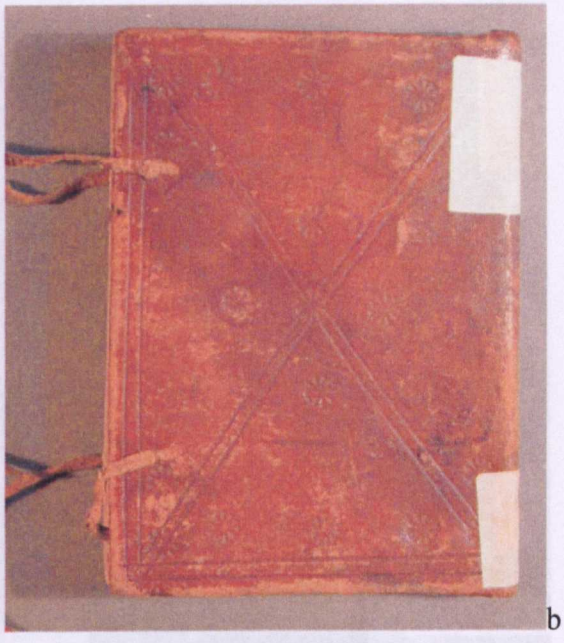

e

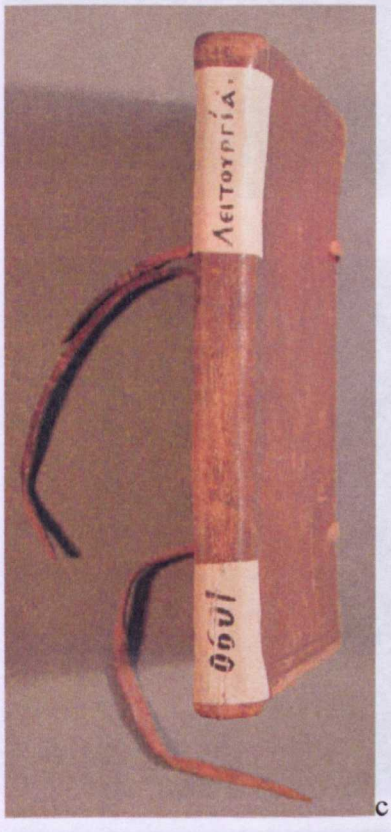
S.1057

a b c d e f

S.1090


a


b



c


d

S.1210


a


b

c


d- head

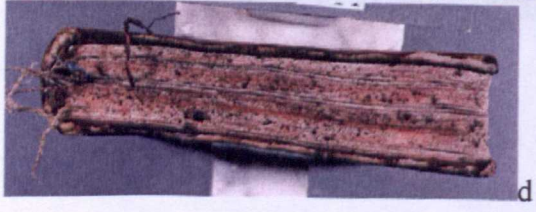

e

S.1711


a

b


c


d -tail


e

S.1779


a

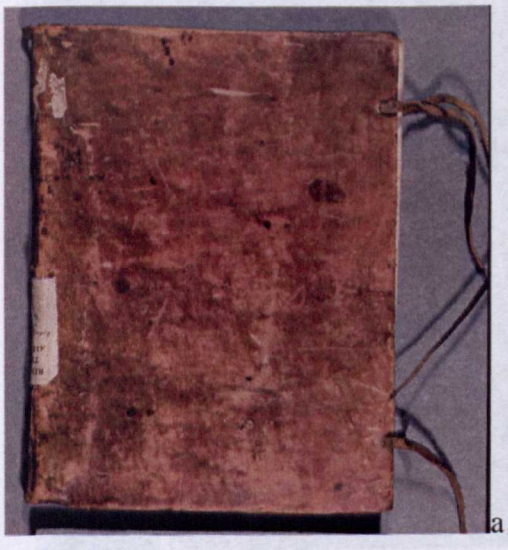

b


c


d- head


e

S.1812


a


b

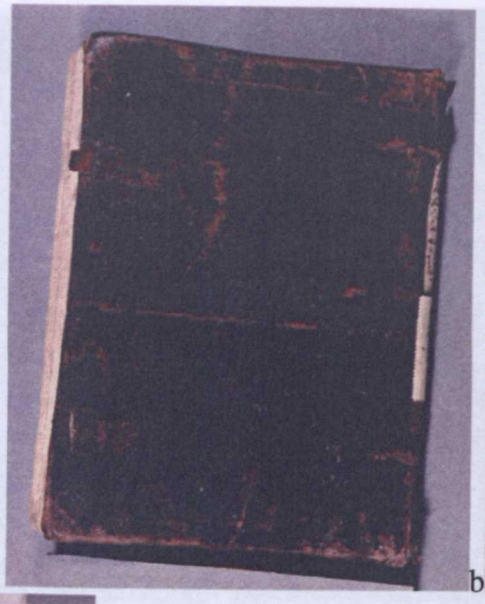

c


d-tail


e

S.1871


a


b


c


d -head

S.1918


a


b

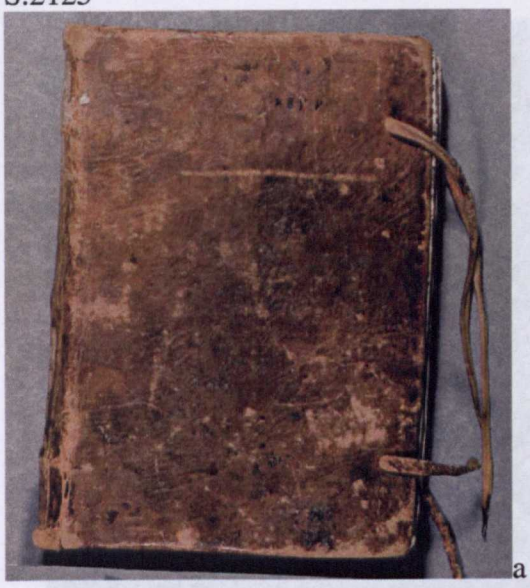

c


d -head


e

Detail of the tooled impressions

S.2125


a


b

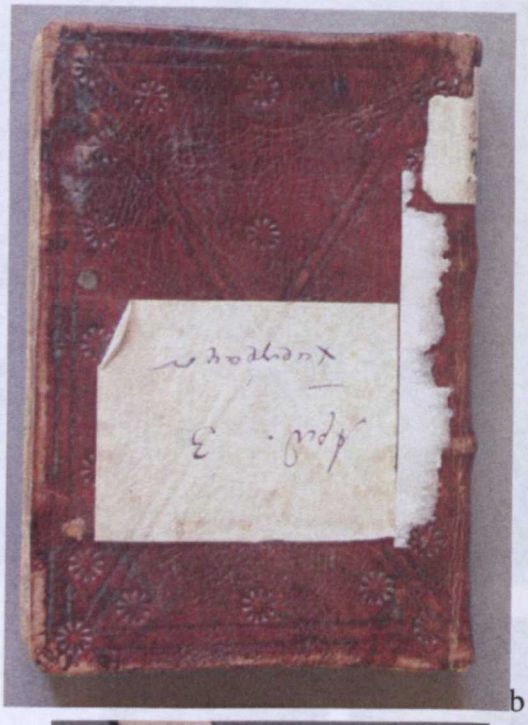

c


d-tail


e

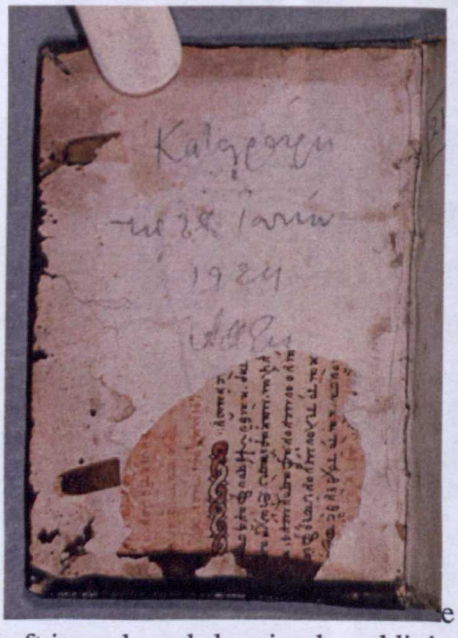
S.2170


a


b

c


d


e

Left inner board showing board lining with manuscript waste


f

S.2289


a


b

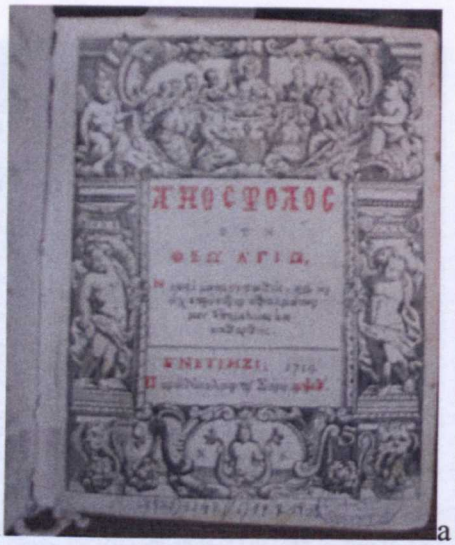
c


d


e

Right inner board showing board lining
with the Codex Sinaiticus fragment

S.Pr.4921



a


b

S.Pr.5231

a


b

S.Pr.5245

a


b

3.1.6.1 Introduction

This group of 18 manuscript bindings is the earliest example of eighteenth century bookbinding work carried out at the monastery. The bindings are either first bindings on contemporary manuscripts (ten volumes) or re-bindings of older manuscripts (**S.705, S.841, S.1056, S.1057, S.1090, S.1871, S.2019, S.2125**). The manuscripts themselves contain a variety of texts, including the *Old Testament* (**S.81, S.2019**), *Liturgies* (**S.1056, S.1057**), *Lives of Saints* (**S.540**), *Sayings of the Fathers* (**S.1779, S.1918, S.2170**), *Anthologion* (**S.686, S.705**), *Theotokarion* (**S.841**), *Book of Canons* (**S.1711**), *Theologia* (**S.2125**) and others of various compilations of texts (**S.1210, S.1812, S.1871, S.2289**) and all of which are written in Greek. Three more volumes from the printed books collection of the monastery also fit this group and have been valuable in determining the dates of this workshop. The bindings are made in a predominantly Western style, using in every case raised sewing supports laced into laminated paper boards, occasionally making use of old manuscript waste, as endleaves or board linings. However, features of a Greek binding style, such as endbands sewn to the boards are also identified. The decoration of the leather covers is made with very plain blind-tooling, making use of only one small hand tool impressed repeatedly, in distinct patterns, which distinguishes these bindings and allows them to be grouped together.

According to notes from the binders themselves, the binding work can be attributed to monks from the monastery of St Catherine. The bindings are dated to the first quarter of the eighteenth century, during the periods when Archbishops of the St Catherine's Monastery were Kosmas I (1700-1708), Athanasios III (1708-1720) and Ioannikios II (1721-1728), all of whom are well known for their attention to books, their scholarly activity and interest in accumulating books for the monastic library.

3.1.6.2 Paleographic Notes

There is a wealth of information that can be extracted from the several inscriptions found in the 18 bindings of this group. A great number of these refer to or were written by the scribes, and also provides the dates and the location of completion of the manuscripts. Most interesting of all are the two notes signed by the binders of the manuscripts, from which it is confirmed that this group of bindings was made by at least two different binders at the monastery of St Catherine's.

In **S.81** we read:

> f.239v: *"Bound by me Leontios [from Sinai?] the Cypriot, when you stand to pray do not remember my errors, but friendship and love. May God forgive me"*[28]

On the recto of the same folio the scribe has signed in a colophon:

> f.239r: *The present was written by me, God's servant, Matthew the sinner and unworthy, for monk Klimentos the Cypriot and for prayers towards him the unworthy. [...] Both from Sinai. In the year 1664, month of March the 16th.*[29]

In **S.841** there is a note by a different binder:

Left endleaf:

"The present book was bound by me Germanos, so that I can read it while I am at the monastery. And whoever reads it after me, may he commemorate the scribe and the restorer."[30]

The same hand carries on to a different inscription, probably a few years later:

"In the year 1704 during the month of July, I came from Constantinople and made a pilgrimage to the Holy Monastery and stayed in Egypt until 1707 and came to the monastery, remained for two years and then we went with Father Laurentios to Thessalonica and we came in 1713 again to the Holy monastery. Germanos monk from Kastoria"[31]

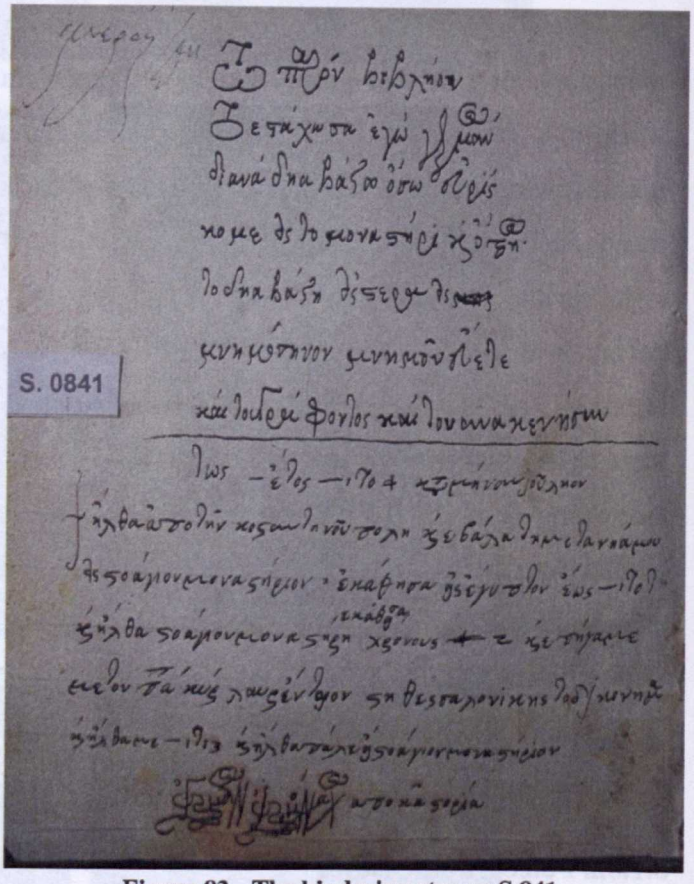


Figure 83 - The binder's notes on S.841

[28] *«εσταχώθ(ει) υπό εμού λεοντίου [σιναΐτου;] κυπρέου, όταν σταθείς εις προσευχήν μή μου επί λάθους αναμνήσθητι. φυλί(ας) & αγάπης κ' συγχ(ώρεσον) ω θ(εός) ϊμοι.»*

[29] *«εγράφη το παρόν υπεμού, θεού συνεργόντος, ματθαίου αμαρτωλού κι αναξίου, δια κλήμεντος μοναχού του κυπρίου. δια προσευχής αυτού καμού του τρισαθλίου. Πόνου πλησμονής αγαθών έργων καμτχ(;) ευρίσκει λύσιν πολών αμπλαικ(;) αμφώτεροι σιναΐται. Έτος αχξδ (1664) μήνα μαρτίου ιστ' (16).»*

[30] *«τω παρόν βεβλήον το εστάχωσα εγώ γερμανός δια να δηαβάζω όσω ευρίσκομε εις το μοναστήρι κ' ΄όσ(?) πάρη το δηαβάζη είστερα ας μνημονεύετε και του γράφοντος και του ανακενήσων.»*

[31] *«τω έτος 1704 κατα μήνα ιούλιον ήλθα από την κοσταντηνούπολη κ' έβαλα την μετανηά μου εις το άγιον μοναστήριον. εκάθησα εις έγυπτον έως 1707 κ' ήλθα εις το άγιον μοναστήρη, εκάθησα χρόνους 2 κ' επήγαμε με*

Five manuscripts contain notes by their scribes, some of which mention Egypt or the monastery at Sinai as the place where the manuscripts were completed.

In **S.686** we read:

> *"The present paraklisis was completed at the Saint's Peak and whoever removes this let him have her curse. And when you read this remember me the sinner Kyrillos monk from Sinai."* [32]

S.1057 has a note on its right board lining, which unfortunately is partly lost:

> *"The present book was written in Egypt in the year [?] by the hand of unworthy monk of Sinai Maximos"* [33]

S.1711 is a manuscript still in its first binding. The scribe signs on the first folio:

> *"The present nomokanon belongs to me Genadios monk, which I wrote at the Holy monastery of Mount Sinai with a lot of effort"* [34]

In **S.1812** we find an even more informative note, which gives us the date of completion of the manuscript:

> *"The present grammar was written by the hand of unworthy Damianos, deacon of Sinai and from Roumelis, in Egypt, completed in the year 1721, September 13."* [35]

S.1871 concludes with another note from the scribe:

> *"The hand of monk Neofytos wrote this. Jesus, my Saviour, save and bless me. The end, Glory is to God [...] I Neofytos from Sinai wrote this"* [36]

S.2289 is a composite book that consists of three printed volumes and a manuscript with various texts, bound all together. The manuscript is of unknown date and provenance; however, the printed volumes are dated 1681, 1681 and 1727

τον παπά κυρ λαυρέντιο στη θεσσαλονίκης το διακόνημα κ' ήλθαμε - 1713 κ' ήλθα πάλε εις το άγιον μοναστήριον. γερμανός ιερομόναχος από καστοριά»

[32] *«η παρούσα παράκλησις εκληρώθη εις της αγίας την κορυφήν και ο ξενώσας αυτήν ας έχει την κατάραν αυτής. Κ' όταν α(να)γινώσκοντες μέμνησθε υπέρ εμού του αμαρτωλού, κυρίλλου μοναχού κ' σιναϊτου.*

[33] *«Η δέλτος αύτη εγράφη εν έγυπτο επί έτους [?] διά χειρός ευτελούς μαξίμου ιερομονάχου σιναϊτου»*

[34] *«τω παρόν νομοκάνονων υπάρχει καμού γεναδίου ιερομονάχου τω οπίον τω έγραψα στο άγιον μοναστήριον το σινά ώρος με κόπον πολάν»*

[35] *«η παρούσα γραμματική εγράφη δια χειρός ευτελούς δαμιανού διακόνου σιναϊτου και ρωμελιώτου εις αίγυπτον κ' έτος αψκα (1721) σεπτεμβρίου ιγ' (13) ετελειώθη»*

[36] *«χειρ νεοφύτου έγραψε ιερομονάχου του έχοντος κ' γράψαντος χ(ριστέ) σ(ωτηρ) μου σώσον κ' ελέησον ημάς. Τέλος κ' τω θεώ δώξα κ' το δέσιν τοις άλης (?) νεοόφυτος(?) έγραψα σιναϊτης»*

respectively, from which 1727 can act as the *terminus post quem* for the date of the binding.

Three more printed books from the printed-book collection of the monastery are also worth investigating. Their bindings match perfectly this group both in terms of decoration and structure and therefore have been useful for confirming the dates of the bindings, since the title pages of all three of them have survived.
S.Pr.4921, is an *Apostole*, printed in 1714 by Nikolaos Saros. **S.Pr.5231** includes the Holy Services of St John Chrysostom and Great Basil, printed in 1693 by Chrsitoforos Tzanetis and **S.Pr.5245** is also a Service book as **S.Pr.5231,** printed by Nikolaos Glykis in 1684.

3.1.6.3 Material and Structural Similarities

a) Endleaves and watermarks
The most characteristic feature regarding the formats of the endleaves employed on these bindings is the randomness in which they are arranged across not only the 36 endleaf units, but also between the two endleaf units of each binding. There are five main types of endleaves recorded, as shown in the diagrams below:

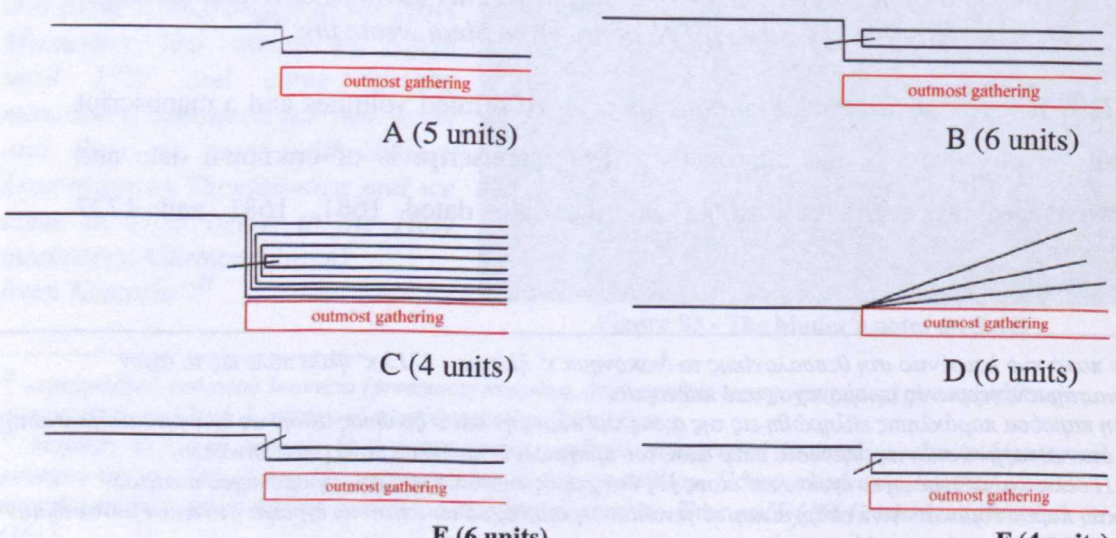


Figure 84 - Diagrams of the endleaf arrangements recorded from the bindings of Group 57

Of these there are only four bindings that have the same format between their left and right board. (**S.540** –Type E, **S.1779** – Type E, **S.1812**- Type A, **S.1871** – Type B). Type E is an unusual arrangement of endleaves that is not frequently encountered in Greek bindings. It consists of two bifolia, where two leaves are used as pastedowns. On some occasions one of the two pastedowns may have been inserted underneath the turn-ins; however it has not been possible to see them clearly on these examples. Boudalis (2004, p.187) also encountered three other instances of this endleaf arrangement on **S.1996** and **S.2056**.

Although the same endleaf arrangement was not used in all the bindings, the repetition of arrangements such as Type E and F, which are not very common in Greek bindings, may point to a binding workshop that was familiar with a number of different methods of making endleaves and combined them at random.

The majority of the endleaves where made with Western papers that carry watermarks. The dates of some of these papers have been confirmed by comparison with published watermarks, which have consequently confirmed the approximate date of some of these bindings. Moreover, some of these watermarks have helped to identify that exactly the same paper was used in four bindings (**S.400, S.686, S.1812** and **S.2125**) and to reinforce our speculation that these were made at the same workshop. Below is the summary of the watermarks found and identified from the bindings of this group, along with the dates of their papers as derived from published sources:

- S.81: *Crown in circle, with star and half-moon above,* unidentified
- S.400: *Grapes,* similar but not identical to Heawood 2116-17 (1683)
- S.540: *Lion with Royal orb and letters S P & Crown,* similar but not identical to Heawood 3161 (Palermo, 1726-50)
- S.686: *Grapes,* similar but not identical to Heawood 2116-17 (1683)
- S.705: Unidentified
- S.1056: *Crown and below letter A, above star and half-moon,* unidentified but nearest one is Heawood 1133 (Venice, early 17th c.).
- S.1057: *Crown,* unidentified

- S.1090: Unidentified
- S.1210: *Letter T in circle,* unidentified
- S.1711: *Three crescents,* similar but not identical to Heawood 864 (Venice 1686) and 872 (Venice c.1710)
- S.1812: *Grapes,* similar but not identical to 2116-17 (1683)
- S.1918: *Crown,* Unidentified
- S.2125: Textblock paper - *Three crescents* similar but not identical to Heawood 864 (Venice 1686)

b) Sewing

The sewing of the majority of the 18 textblocks follows a distinct pattern and an identical sewing technique. 16 of them are sewn on sewing supports made of cord, and have change over stations that are 15 to 35mm from the edges of the textblocks. The number of sewing supports depends largely on the size of the textblocks. Four volumes have been sewn on two supports (fig.85), 11 volumes are sewn on three supports (fig.86) and the tallest volume, S.400 (234mm) is sewn on four supports (fig.87). The only irregularity in the pattern described is **S.1057,** which is sewn on two supports but could have been sewn on three supports according to the book's size and to how the majority of the other textblocks has been sewn. The two bindings that are sewn with unsupported sewing (fig.87) are both early bindings that were restored. It is a possibility that the sewing structures of these two manuscripts were still intact when the restoration work took place and that it was not necessary to replace the sewing, hence the difference in style compared to the other 16 bindings.

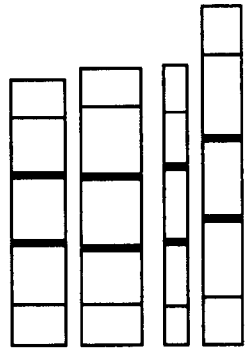


Figure 85 – S.2170, S.1210, S.686 and S.1057 (from left to right) with supported sewing on two cord sewing supports

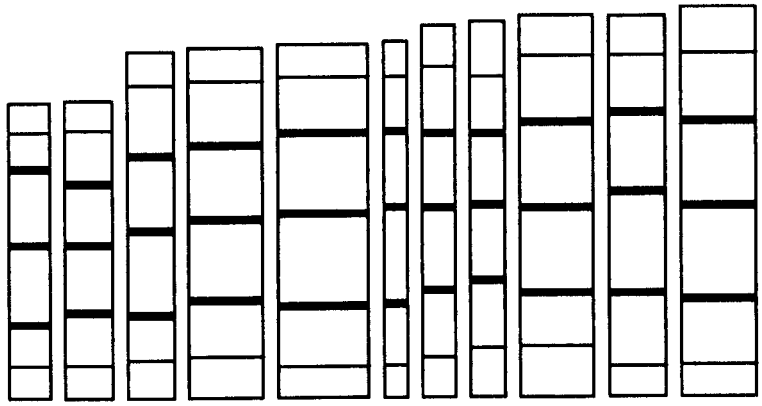


Figure 86 - S.1779, S.705, S.1056, S.81, S.2125, S.540, S.1918, S.1812, S.2289, S.1871 and S.1711(from left to right) on three, cord, sewing-supports

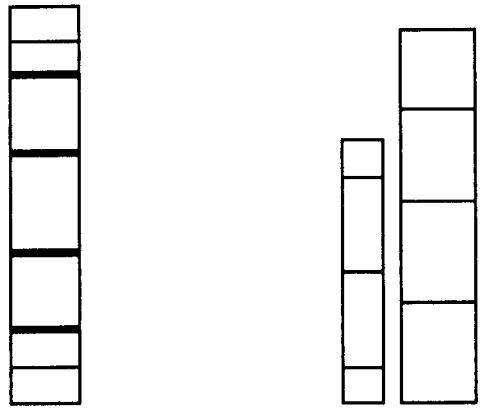


Figure 87 - S.400 (left) sewn on four cord sewing supports, while S.1090 and S.841 (right) remain with their earlier unsupported sewing on three sewing-stations.

c) Boards and Board attachment

All but two pairs of boards are made of laminated paper that measure between 1.5 and 3mm in width, with squares around the edges of the textblocks. The method of board attachment was similar in all the bindings sewn on supports, the cord supports having been laced through the boards in three points. The ends of the cords were stuck to the inside of the boards (fig.88)

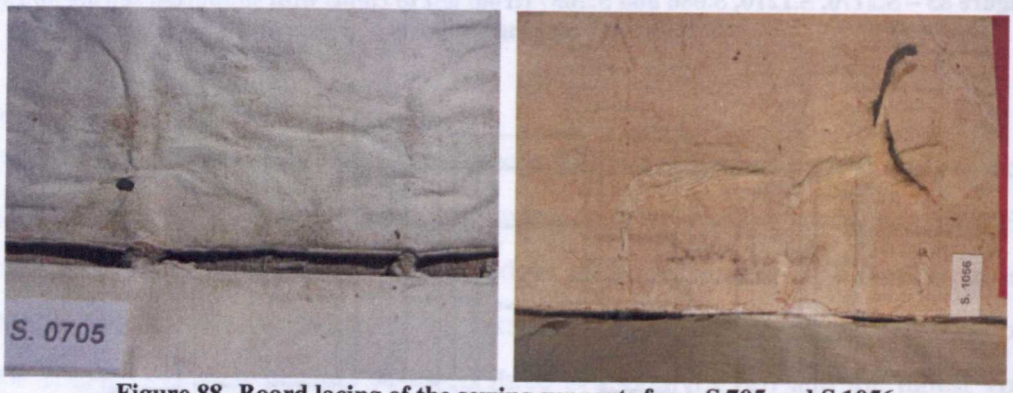


Figure 88 -Board lacing of the sewing supports from S.705 and S.1056

Four bindings from this group (**S.540, S.1056, S.2170, and S.2289**) were found to have laminated boards which are lined on their inner face with Greek manuscript waste, written on either paper or parchment. Two of these bindings were also found to have boards made up of manuscript waste laminated together, one with a Greek text (**S.2170**) and the other with Arabic text (**S.540**).

One of the above manuscript fragments identified in **S.2289** prompted further investigations, particularly since it has not been described or referred to in the manuscript catalogues or in current published research, but mainly because of the particular significance it holds as a manuscript.

S.2289 has a partially torn paper pastedown on the inside of its right board, underneath which a parchment manuscript is revealed (see photo S.2289d). The manuscript must have functioned as a board lining, although it is uncertain whether it could be part of a laminated parchment board instead. The text of this manuscript is written in a Greek uncial script with clear and wide letters. What is characteristic about the form of the manuscript is that it is

written in an unspecified number of narrow columns, two of which are visible through the pastedown as it stands. The uncial writing refers us to a significantly early manuscript, most certainly before the tenth century A.D. by which date Greek majuscule was entirely abandoned and replaced by miniscule. The width of the column of text of this fragment is particularly narrow, measuring between 59 and 62mm, wide enough for no more than 11-14 letters per line. This is exceptional as we are not aware of many Greek manuscripts that are arranged in this format with such narrow columns. Raking light and magnification have also helped to reveal that ruling exists under every two lines of text, on which the bottom line of the letters are sitting.

A manuscript that matches the above description very well and the only Greek manuscript known worldwide to have been written in such narrow columns is the *Codex Sinaiticus*[37]. A comparison of scribal features, such as the style and size of some characteristic letters, the distance of the ruling lines, the width of the columns, the number of letters per line and the height of the lines of text, between this manuscript fragment and the *Codex Sinaiticus* leaves at the British Library has confirmed the identification of the fragment with the famous manuscript.[38]

This find has been revealing for this group of bindings for a number of reasons. First of all, it confirms, along with the evidence of the manuscript waste in the bindings of **S.540, S.1056, and S.2170,** that the binder/s of this workshop had a habit of re-using manuscripts as material for their bindings. This is not an uncommon phenomenon. Paper or parchment have been scarce or expensive at times, especially for a remote place like the monastery of St Catherine's, and where possible, recycling the waste or loose manuscript leaves of

[37] The *Codex Sinaiticus* is a fourth century Greek manuscript containing the oldest complete New Testament to survive worldwide. It is thought that this could be one of the 50 manuscripts that the Emperor of Byzantium Constantine the Great (272-337A.D.) ordered to be made and sent to the major churches of his newly established Christian state (Price, 1923, p.146). It remained at the monastery of St Catherine's for centuries, until it was seen by Konstantin von Tischendorf, who removed it in two parts in 1844 and again in 1859. The manuscript is now in four libraries around the world: The British Library, Leipzig University Library, National Library of Russia in St. Petersburg and the Saint Catherine's Monastery.

[38] This discovery was presented at the British Library Conference on the *Codex Sinaiticus*, 6-7 July 2009. For the full description of the identification of the fragment see the article by Father Justin & Nikolas Sarris, "The discovery of an additional *Codex Sinaiticus* fragment", in the forthcoming conference proceedings.

unknown origin has been a normal and frequent bookbinding practice by bookbinders in the west as well as for Greek bookbinding workshops.

The find of a *Codex Sinaiticus* fragment is another confirmation that these bindings were made at the monastery. It is nearly impossible to think that any place other than the monastery of Saint Catherine's would have access to or would have acquired fragments of the *Codex Sinaiticus* by 1727 when these bindings were made.

The conditions under which these manuscript fragments were made available to the binders of this group are not clear. Looking at the "New Finds" and the condition in which they were found provide us with some evidence. It is apparent that many manuscripts were disbound and damaged and many fragments were separated from their main textblocks. It is estimated that the majority of the damaged or fragmentary manuscripts were kept in the tower room where the "New Finds" were found. It is not a coincidence that among the "New Finds" there are only a few complete volumes. Several fragments of the *Codex Sinaiticus* were also found there, including a fragment from the same chapter (Joshua 10:12) as the fragment of **S.2289**. This observation makes it very likely that the fragment of **S.2289** would have once been kept together with the "New Finds", possibly already in the tower room, from which thousands of pieces of discarded parchment would have provided a good source for bookbinding material.

d) Endbands

Two main types of endbands are identifiable in the bindings presented in this group. Although a variety of colours has been used, it is evident that the techniques used to sew the endbands were similar on many of the bindings.

- *Sewn with front bead and crowning core* (Boudalis, 2007, p.43): This is the most common type encountered, which is found in the head and tail bands of seven bindings **(S.81, S.1056, S.1090, S.1711, S.1779, S.1871, S.2289).** The colours used to sew them vary from one binding to another. The combination of green/pink appears on two of these, while the other combinations are different (pink/white,

green/red, red/black and red/white). This style of endband appears to have been very common on Greek bindings or Western-style bindings made by Greek binders from the mid-seventeenth century and throughout the eighteenth century, and there are many examples to be found in the library at St Catherine's (e.g. Boudalis, 2004, *New Library bindings,* pp.224-225).

- *Two-core endband with secondary sewing of a compact chevron and a crowning core:* Six bindings have endbands of this more decorative and elaborate type (**S.400, S.705, S.841, S.1812, S.1918, S.2125**). Moreover, two of these share exactly the same white and pink threads (**S.841, S.2125**). The other three bindings make use of blue, green and pink in random combinations without any apparent resemblance between them, although it is possible that the pink is the same thread as in **S.841** and **S.2125**.
- Three bindings (**S.686, S.1210 and S.2170**) have endbands which do not conform to the above two types. **S.686** has a very simple primary endband on one core without beads, using blue thread, **S.1210** has a two-core endband with secondary sewing, without beads, using blue and pink threads and **S.2170** has a typical Greek endband on two cores sewn with a natural coloured thread.

A further distinction between the endbands is noted according to the way that these are attached to the boards, whenever it was possible to identify it. In four bindings the endbands have been sewn to the boards in the Greek fashion, in two bindings they protrude over the edges of the boards and have been recessed and held under the leather cover, while in four bindings a combination of the two methods has taken place. However, it is characteristic than none of these three distinct ways of board attachment coincides with any specific type of endband among those encountered and described above, instead they are employed randomly.

e) Covering

The bindings of the manuscripts in this group have all been covered with tanned leather skins. It has been difficult to establish whether the skins are goatskins or sheepskins, based on visual observation. This is mainly because the covers carry features of both these leathers

and neither of the two so distinctly as to be able to say with confidence. The majority of the covers resemble one another mainly in the hues of the skins, most of which are light brown and few which are red-brown.

3.1.6.4 Decoration

The covers of these bindings have been decorated in blind using only one small hand-tool, which was impressed repeatedly to form the design on the binding, along with a single-line tool, such as a point or a creaser. Their decoration is austere and one of the simplest and easiest to achieve. However, both the small hand-tool itself, as well as the layout of the decoration are distinctly similar, which has provided the preliminary evidence that links these bindings together.

a) Decorative layout of the covers

The predominant layout that is seen on these bindings is B2, a plain saltire, inside a rectangular frame. Only one binding (**S.1871**) has a different layout, which is C4, a single frame divided into 16 triangles. The small, circular hand-tool is used to fill the spaces formed by the saltire, but also shapes an outline around the covers and in many bindings is also used to create a cross.

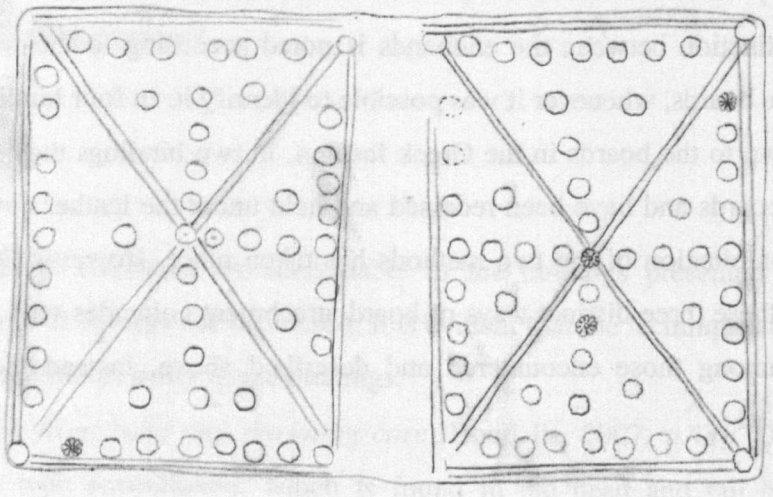


Figure 89- Drawing of the decorative layout from S.1918.

b) Finishing Tools

The main tool that is used for the decoration of these bindings is Hf.rs07, a nine-petal round rosette. As a motif it is contemporary with the date of the workshop, however it also relates to much earlier bookbinding decorative styles. In the context of this thesis, there have been 56 other tools recorded which resemble this tool, yet they have either more or fewer petals or differ in size from our tool. From those bindings decorated with this motif whose date was approximately identifiable, we observe that it is a motif that was used in bookbinding for at least five centuries. The majority of the examples that we have come predominately from the seventeenth and eighteenth centuries, as seen in the table below:

Century	Percentage of bindings
13th or earlier	8%
14th	2%
15th	12%
16th	14%
17th	38%
18th	20%
19th	3%

Table 3.1.10 – Percentages of bindings per century out of a sample of 50 datable bindings with decoration that includes the round rosette motif, similar to Hf.rs07

It is characteristic that the bindings of the earliest periods, meaning before the fourteenth century, include in the most part bindings of Syriac, Arabic and Georgian Christian manuscripts which also carry features of the relevant bookbinding traditions. The bindings of the fifteenth century with this motif are equally divided between Greek and western style, while towards the sixteenth century and later they are predominately of the Western tradition. This of course coincides with the general shift in bookbindings found at the monastery that gradually changed from the Greek to the western style. However, this observation demonstrates that this is a motif that was adopted equally by the majority of the bookbinding traditions represented in the St Catherine's bindings and that it was never entirely abandoned.

3.1.6.5 Conclusions

This chapter has discussed 18 bindings on Greek manuscripts that were produced by a bookbinding workshop at St Catherine's monastery during the first quarter of the eighteenth century. These bindings were linked together by the similarities in their tooled decoration and the several structural features which are evidently related to one workshop or a number of people working closely together.

Two binders have been identified to have worked on these bindings, based on the signed notes they have left in two manuscripts. Monk *Leontios* has signed his name as the binder of **S.81,** a manuscript written by monk Matthaios of St Catherine's monastery in 1664 and monk *Germanos* who, apart from stating that he bound **S.841,** also notes a short calendar of his whereabouts from 1704 until 1713 and the periods that he spent at the monastery.

The 18 bindings examined are in most aspects Western in style. All but two of them are sewn with sewing supports which are laced into the boards. The way that the sewing supports are arranged over the length of the spine and the choice of the number of supports on each textblock according to its height presents a clear pattern, that is more likely to be the outcome of one workshop. This is reinforced by the fact that many of the endleaves also follow a similar pattern, while four bindings were found to have endleaves made of exactly the same paper.

It is evident that the binders were also familiar with the Greek bookbinding tradition. In eight out of the 18 textblocks the endbands are sewn to the boards according to the Greek style. The endbands themselves are not all identical, since a variety of colours has been used as well as two main different techniques of sewing them; however, within the two subgroups of endband styles, great similarities are occasionally identified, such as that between **S.841** and **S.2125.**

The decoration of the leather covers is the most obvious link between the bindings. Only one small hand tool depicting a simple round rosette has been used, which is impressed repeatedly on the left and right covers but never on the spine. One tool should normally not provide sufficient evidence to group bindings based on their decoration. However, the layout of the decoration is characteristic as well as being identical on 17 out of the 18 bindings. The distinct use of the rosette tool within this layout can only reinforce the

suggestion that these bindings were decorated by the same person or two people working closely together or copying one another.

From the identification of the specific workshop we may derive certain evidence of the provenance and date of specific manuscripts.

- It is not known if **S.841** was written at the monastery or not. However it must have been at the monastery by 1704, around which date it was also bound. Based on **S.841** the date 1704 is also the earliest identifiable starting date for our workshop.
- Two manuscripts (**S.1057** and **S.1812**) have notes that confirm they were written in Egypt, most probably meaning Cairo, by monks of the monastery. The link of the monastery with Cairo is established throughout the centuries through the dependency of the monastery in Cairo and there has been plenty of evidence confirming that manuscripts, which are now at the monastery in Sinai, were written and bound in the dependency. These two manuscripts are confirmed to have been to the monastery during the working period of this workshop, since they were bound there. In particular **S.1812,** which was written in 1721 must have been moved to the monastery soon after it was completed, since its current binding is the first and only binding it has ever had.
- The last datable book that links binding work with this group is **S.2289.** This book contains a manuscript and three printed books bound together, the last of which has a title page that bears the date 1727.
- The time span of this workshop is therefore set between c.1704 and c.1727 or not long after.
- The three printed books from the St Catherine's collection that are also part of this bookbinding group have confirmed what was already evident prove from the inscriptions and watermarks in the manuscript. Their dates (**S.Pr.4921** – 1714, **S.Pr.5231** -1693 and **S.Pr.5231**-1684) are around the date at which the workshop must have been active and it is most likely that they were bound for the first time at the monastery soon, or a few years, after they were printed.

The information arising from the discovery of the fragment of the *Codex Sinaiticus* is substantial. The fact that such a manuscript would have been available to the binder/s of

these 18 bindings can only suggest that the binding workshop was indeed located at the monastery. The existence of fragments of the precious manuscript outside the monastery before 1844 when the first parts of it were removed from the monastery by Tischendorf is very unlikely.

Based on the number of bindings that have survived at the library, this workshop proves to be one of the most prolific binderies to have worked at the monastery. We may not know for sure what were the circumstances that supported this great bookbinding activity for a period of twenty or more years; however, its date coincides with a period of considerable scholarly activity by monks and abbots of the monastery.

Several manuscripts were written at the monastery during this period, examples of which are some of the manuscripts in this group (e.g **S.686, S.1711** and **S.1812**). Moreover three abbots of the monastery who were in office during the years of this bindery, all are established to have had a great interest in books, promoting their copying and accumulation and taking care of their organization:

- Kosmas I (1700-1708), was the first person who attempted to create a catalogue of the manuscripts held at the library of St Catherine's.
- Athanasios III (1708-1720) is known to have collected many manuscripts and printed books to enrich the monastic library, while being a copyist of many manuscripts himself. (e.g. **S.1595**)
- Ioannikios II (1721-1728) was like Athanasios III a collector and a copyist of manuscripts himself as it is testified in **S.2238** (Digbasani, 1992, p.574-575)

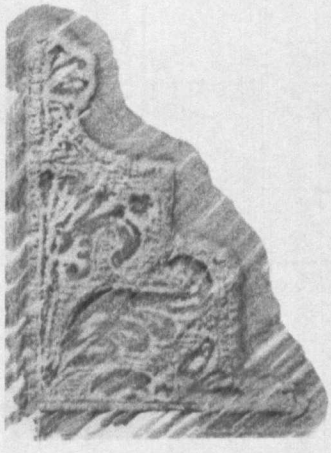
It is merely an assumption, yet a likely one that a productive period for copying and accumulating manuscripts is followed by an equivalent bookbinding production, as we have seen before with the *"New Library"* bindery during the placement of Nikeforos Marthales (Boudalis, 2004). His personal manuscripts as well as many older manuscripts and printed books were bound at the monastery in view of the new library that was created to gather the majority of the manuscripts that were up to then scattered in several rooms around the monastery. The workshop examined in this chapter was in a similar way active throughout the placement of the three abbots mentioned above, who were particularly interested and active in terms of accumulation of books and the copying of manuscripts.

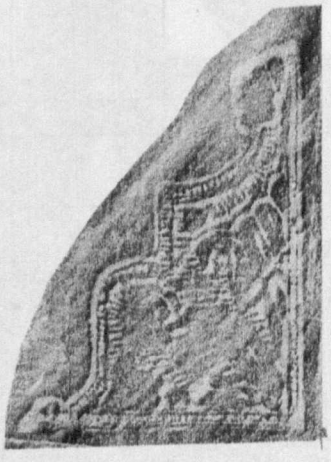
3.1.7 Group 12

DECORATIVE TOOLS ON THE BINDINGS OF GROUP 12

Ct.cx05

Ct.ot10





Lf.fe04

Hf.st35

Rf.fw13

TOOL 18

Rf.fw18

TOOL 24

	Tool / Manuscript	1	2	3	4	5	6	7
		Ct.cx05	Ct.ot10	Lf.fe04	Hf.st35	Rf.fw18	Rf.fw13	
1	S. 0256	x	x	x	x		x	
2	S. 0482	x	x	x				
3	S. 0543	x	x	x	x	x		x
4	S. 1972	x	x	x				

Table 3.1.11 - List of finishing tools with their correspondence to the bindings.
(Rubbings not in scale)

PHOTOGRAPHS OF BINDINGS IN GROUP 12

S.256


a


b

c


d

S.482


a


b


c


d


e

S.543

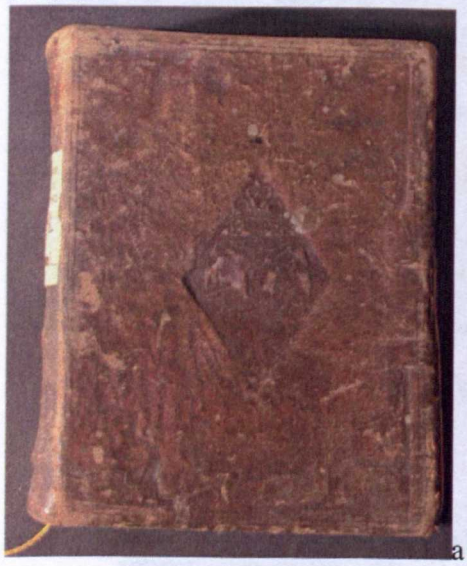

a

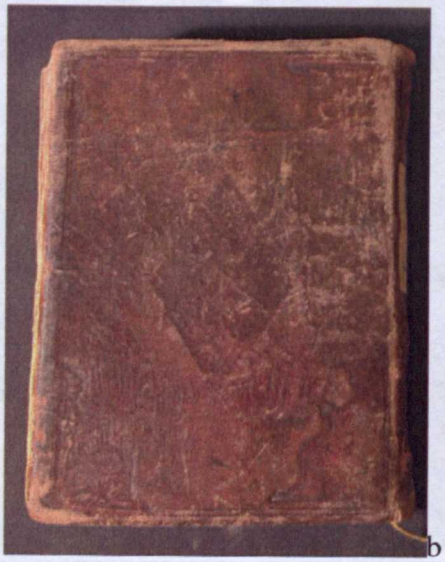

b

c


d

S.1972


a


b

c


d

3.1.7.1 Introduction

This group consists of four bindings on Greek manuscripts, three of which are re-bindings of older manuscripts (**S.256, S.543** and **S.1972**) and one is possibly contemporary with its manuscript (**S.482**). The manuscripts include for different texts: a *New Testament* (**S.256**), an *Ascetica* (**S.482**), *Lives of Saints* (**S.543**) and a *Liturgy* (**S.1972**). These bindings were made in a characteristic western style, decorated with small hand tools, centre-pieces, corner-pieces and rolls of western inspiration in blind and gold. The bookbinding workshop responsible for these bindings was most probably located within the monastery or within close proximity and relation to it, as is shown by the use of two rolls that were discovered among the finishing tool finds at the monastery. The period of activity of the workshop could not be defined with precision due to the lack of notes, dated colophons or other archival information within the manuscripts that would help with their dating. However the close stylistic resemblance of these bindings with other dated bindings that are discussed elsewhere in this thesis and the relationships established by certain tools that they share, including the discovered finishing tools, allow us to date them approximately to the end of the eighteenth century.

3.1.7.2 Paleographical Notes

The bindings of this group are characterized by the lack of supporting evidence to help us date them. The evidence that we have is primarily the dated colophon of **S.482** that places the writing of the manuscript in 1630, which, however, is of no use in dating the binding since the manuscript was bound at least once before its current binding was made. F.186v (fig.90) in **S.543** includes two notes that gives information about the provenance of the earlier bindings of the manuscript. The first note mentions that the manuscript was borrowed from the dependency in Zakynthos by a certain monk Anthimos Metaxas, who received the manuscript with the blessing of the fathers to take it. Unfortunately we do not know the date of this inscription, but it is most likely that it was written before the manuscript was rebound, since part of a spine-fold repair on f.186 overlaps some letters of this inscription. The spine-fold repair also overlaps another inscription, by which we are informed that the manuscript was donated after the death of the scribe of this note – who omits to mention his name –to the monastery of Saint Catherine in Sinai. Finally, on the

spine-fold repair there is an ownership note that mentions that the manuscript belongs to the monastery of Mount Sinai. Hence it is most likely that the spine-fold repair and the rebinding work of this manuscript took place after the manuscript had arrived at the monastery.

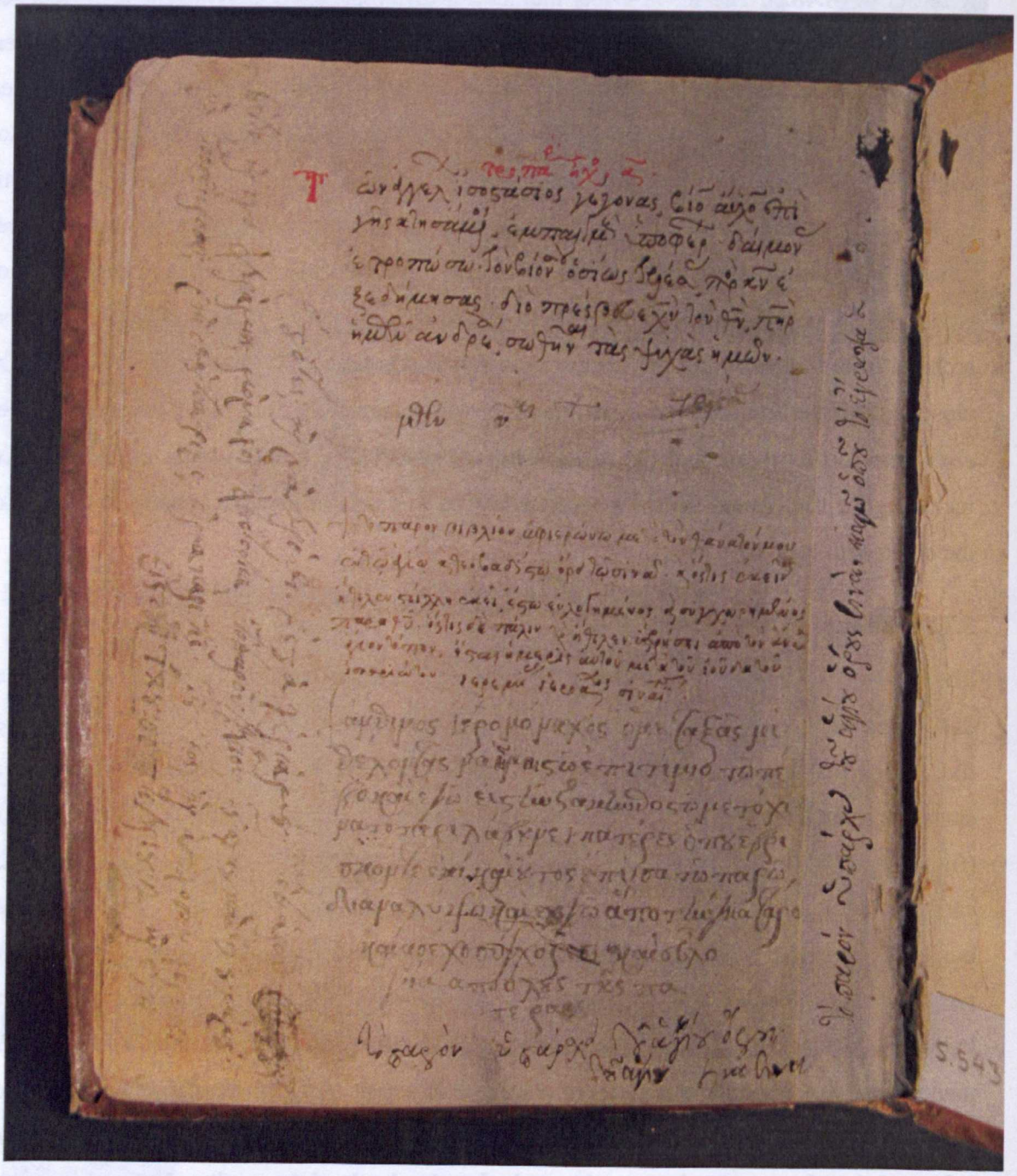
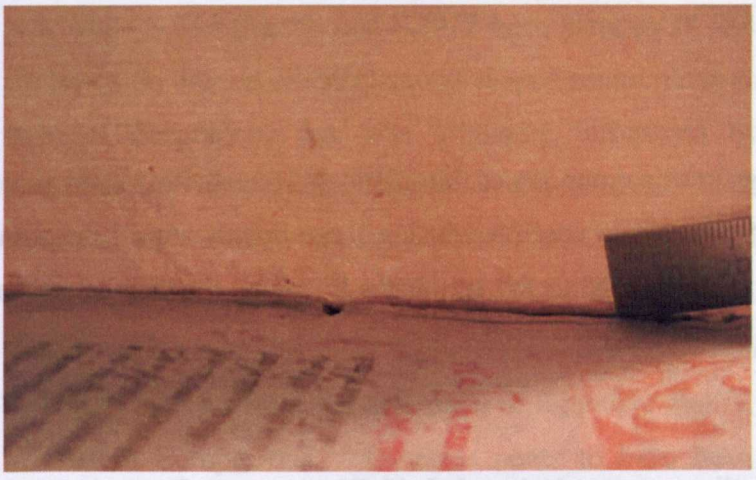


Figure 90 - Inscriptions on f.186v from S.543

3.1.7.3 Material and Structural Similarities

a) Endleaves and watermarks

The three bindings which were rebound also had endleaves added at the time of the repair. Watermarks have been found in these, however only one has been identified approximately to help us date the rebindings.



This is found in the left endleaves of S.**256**.It is a *three crescent* watermark which has been encountered also on bindings of *Group 57* (c.1704-1727), that is similar, yet not identical, to Heawood 864 (Venice 1686) and 872 (Venice c.1710).

Figure 91 - Watermark in the left endleaves of S.256

b) Sewing

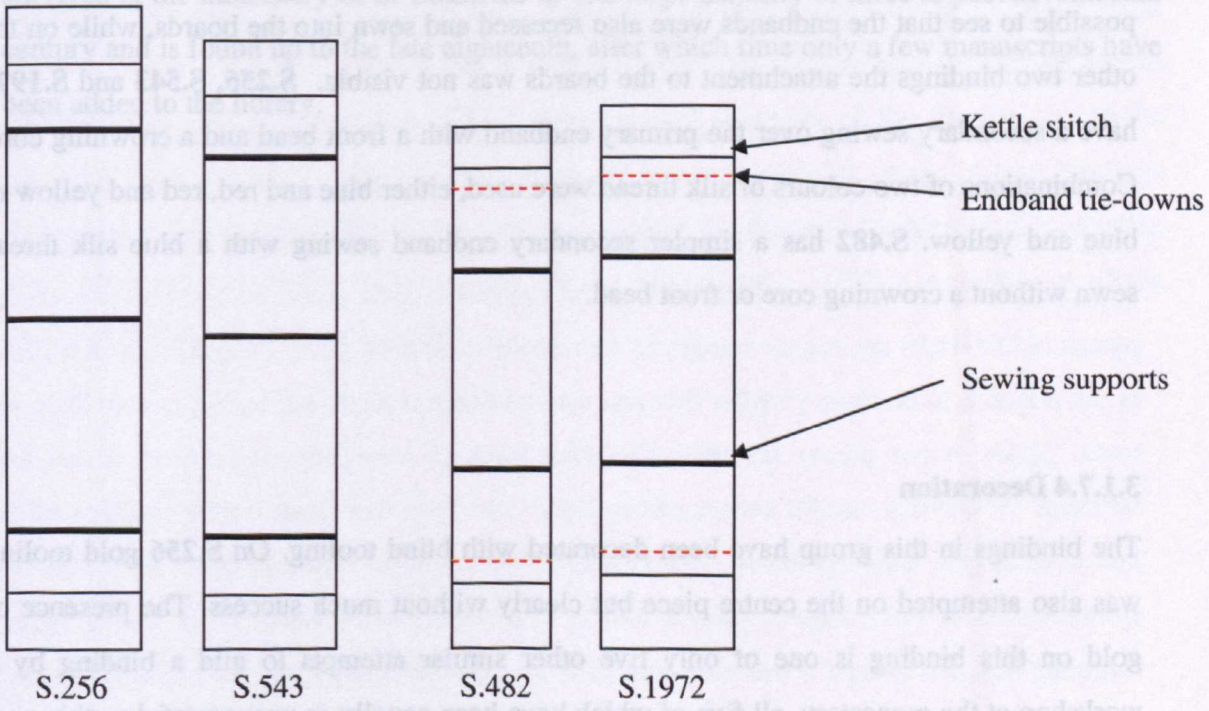


Figure 92 - Diagrams of the textblock sewing stations

All four textblocks are sewn on two or three single cord supports, according to the height of their textblock (fig.92). The two larger volumes (**S.256, S.543**) are sewn on three supports, which are spaced in similar ratios, and the two smaller textblocks (**S.482, S.1972**) are sewn on two supports close to the middle of the textblock. It is evident that on the latter two bindings the endband tie-downs are worked below the kettle stitches, as shown in the diagram.

c) Boards

The boards on all four bindings in this group are of thin laminated paper. Restricted access to the boards has not made it possible to confirm whether these boards are all the same. However it is clear that they were attached to the textblocks by lacing the sewing support slips through the boards in the same way and adhering them to the inner face of the boards.

d) Endbands

The endbands on the four bindings are made in a hybrid Western and Greek style of a similar, yet not identical, type. All four have a primary sewing of a simple thread wound around a cord core, which extends over the edges of the boards. On two bindings it was possible to see that the endbands were also recessed and sewn into the boards, while on the other two bindings the attachment to the boards was not visible. **S.256, S.543** and **S.1972** have a secondary sewing over the primary endband with a front bead and a crowning core. Combinations of two colours of silk thread were used, either blue and red, red and yellow or blue and yellow. **S.482** has a simpler secondary endband sewing with a blue silk thread sewn without a crowning core or front bead.

3.1.7.4 Decoration

The bindings in this group have been decorated with blind tooling. On **S.256** gold tooling was also attempted on the centre piece but clearly without much success. The presence of gold on this binding is one of only five other similar attempts to gild a binding by a workshop at the monastery, all five of which have been equally as unsuccessful as this one.

The choice of tools and decorative layout indicate strongly that these bindings were made in the same workshop, possibly by the same binder, which is supported further by the use of two rolls which are among the finishing tool finds at the monastery.

a) Decorative layout of the covers

A similar arrangement of tools is found on the four bindings. **S.256** and **S.482** have pattern J18, while **S.543** (fig.93) and **S.1972** have patterns J8 and J9 respectively. These patterns are based on the use of the diamond-shaped centre piece and the use of corner pieces. As a style of decoration, this was originally influenced by Islamic decorative arts and bookbinding. These bindings, however, appear to have been made at a period when western bookbinding had already adopted Islamic and arabesque designs and developed them into what would become a very fashionable style throughout Europe. Figurative centre pieces, usually with theological subjects, were impressed in the central space of a cover, surrounded by corner pieces with either arabesque or figurative motifs, again with theological subjects. In Eastern Europe, this style seems never to have been abandoned and was still very fashionable for decorating the covers of ecclesiastical books up to the middle of the twentieth century. A great number of bindings with decoration of the same style have survived at the monastery of St Catherine's. The large majority of these is post-seventeenth century and is found up to the late eighteenth, after which time only a few manuscripts have been added to the library.

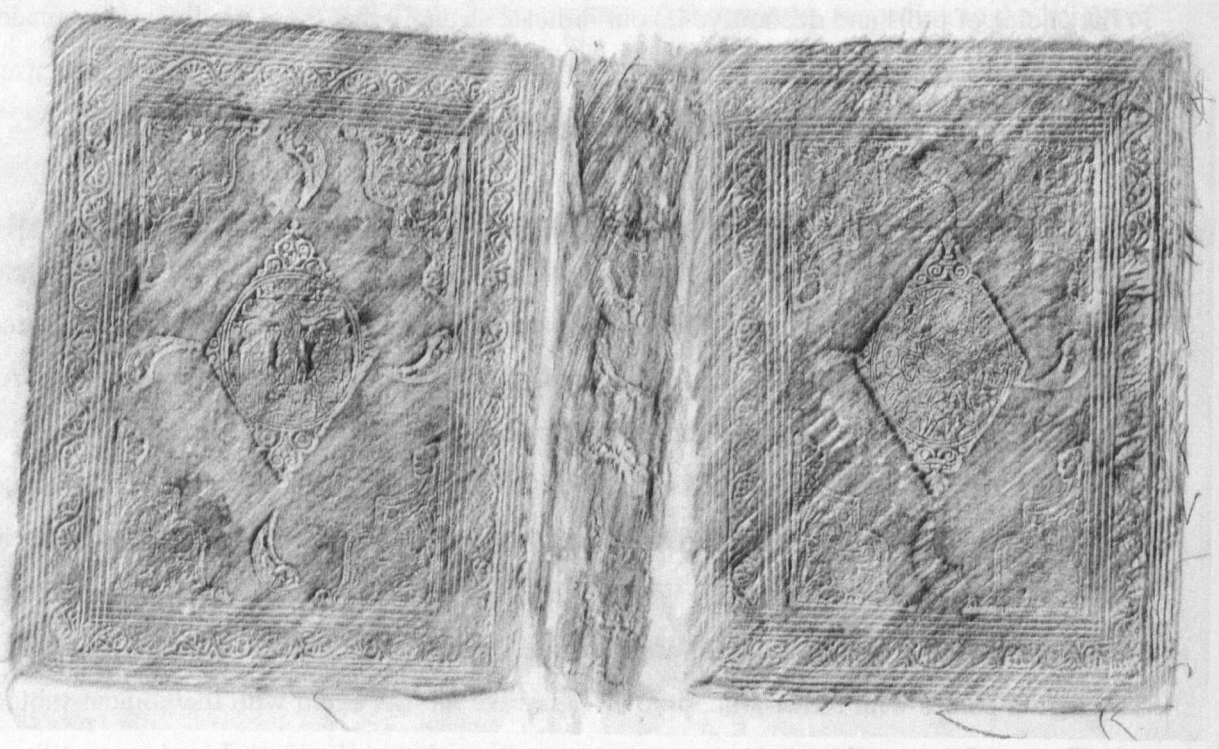


Figure 93 - Full-size rubbing of S.543

b) Finishing Tools

Seven tools have been recorded in total from the bindings of this group (table 3.1.11). These include two centre pieces, a pair of mirror-image corner pieces, two rolls, one small hand tool and one multi-line tool.

The two centre pieces, Ct.cx05 and Ct.ot10, are both diamond-shaped relief tools, with representations of the crucifixion of Christ and an unusual representation of the Last Supper. They have has been impressed on all four bindings, yet on **S.256** they were tooled in gold, though the impressions are not well-executed (photos S.256a and S.256b). The two corner pieces (Lf.fe04a,b) are mirror images of one another, bearing an arabesque floral design. It is not possible to confirm whether this was one tool engraved on both sides or two different tools. These corner pieces are the only other tools to have been impressed on all four bindings. Numerous similar corner pieces have been recorded from Greek bindings of the late seventeenth and eighteenth centuries (Boudalis, 2004, *Vivlioamfiastis II*, p.100-101, Boudalis 2004, PhD Thesis, pp.306-336 & Varvouni, *Vivlioamfiastis II,* p.212, which indicates that as a design it was very fashionable. In the corpus of tools from St Catherine's bindings, six different sets of mirror-image corner pieces with this motif have been

recorded, on a total of 29 bindings, all from the late seventeenth and eighteenth centuries. The provenance of these bindings is not always known, but the majority of them is linked to Northern Greece and Eastern European or Balkan states (Boudalis, *"Cosmas Makedon Group"*, pp.306-336 and App.II 4 of this thesis).

The two rolls that have been recorded are particularly revealing. They bear motifs with flower and leafy *branches* which match those on rolls that were discovered among the St Catherine's finishing tools (2.1). Rf.fw13 (TOOL 18) is a relief roll that has been recorded on one more binding at St Catherine (**S.1935**), yet it is not confirmed by archival or other evidence when this binding was made. Rf.fw18 (TOOL 24) is an intaglio roll that, in addition to the binding of **S.543** of this group, also appears on three other bindings (**S.954** – *Group 4*, **S.999** and **S.1916** – *Group 18*) of the eighteenth-century. The groups that two of these bindings (**S.954** and **S.1916**) belong to are directly related to the monastery and were made there in c.1757-1777 and c.1711-1730 respectively (see 3.1.6 and App.I 7).

Hf.st35 is a tool appearing on two bindings in this group and it bears a floral motif often described as a "curl"[39]. 37 tools with a similar motif have been recorded on more than 50 St Catherine's bindings dating from the seventeenth and eighteenth centuries, which demonstrates how fashionable this motif was with Greek binders of that period.

An additional note should be made here. The tools presented here have been identified as corresponding with those from a binding of a manuscript with *Nomocanons*[40], Ms.Pafos Metropolitan Church.1, dated to 1792.[41] Based on the similarity of the decoration and the identical tools identified, this binding can be put together with the group of four bindings discussed in this chapter. The manuscript is in its first binding and the binding features that were observed are similar to our group. As a result its date -1792 – is indicative of the period that this workshop was active.

[39] Personal communication with Prof. Mirjam Foot

[40] A collection of ecclesiastical rules, used in the Greek Orthodox church.

[41] The tool impressions are reproduced by Athanasiadis 2004, pp.132-162 and are listed as tools 3α (our Ct.cx05), 22α (Ct.ot10), 65β (Lf.fe04b)

3.1.7.5 Conclusions

The four bindings discussed in this chapter are shown to have been made in a fairly consistent style, with small variations in execution, such as the colour of the endband thread and the number of stations as related to the height of the textblocks. Their decoration was carried out with similar layouts using identical finishing tools, two of which have been discovered at the monastery.

These manuscripts unfortunately do not contain any type of written provenance evidence, such as binder's or ownership notes, or any other evidence to help us learn of their history.

The two rolls used on two of the bindings are confirmation that the binder worked either at the monastery itself or at some place with a close relation with the monastery and possibly in close proximity to it. The same tools appear to have been used at the monastery on other bindings, and certainly by different binders, c.1711-1730 and again c.1770-1777. Perhaps they were used on the bindings of this group after the above two active bookbinding periods. It appears most probable that they were executed either at the monastery itself or within its immediate environment.

Finally, the binding of Ms. Pafos Metropolitan Church.1, dated to 1792 that was identified as carrying the same decorative tools may help us place this group of bindings towards the end of the eighteenth century.

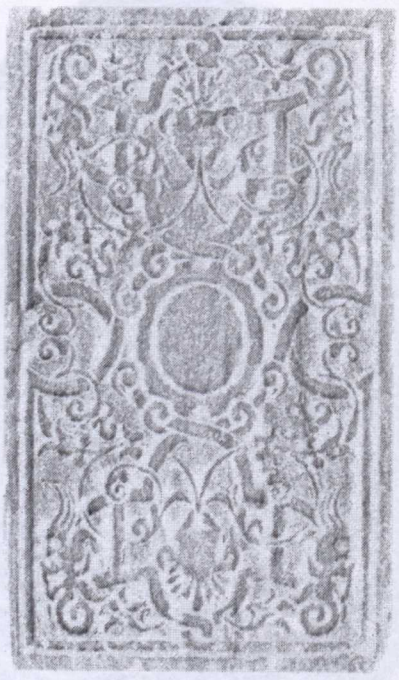
3.1.8 Group 4

Ct.cx01

Ct.je02

Ct.cx06

Ct.je05



Po.ao01

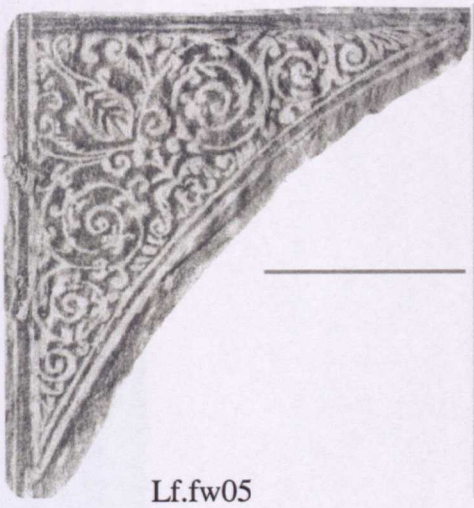
Co.ao07

Hf.st01

Ho.ao47

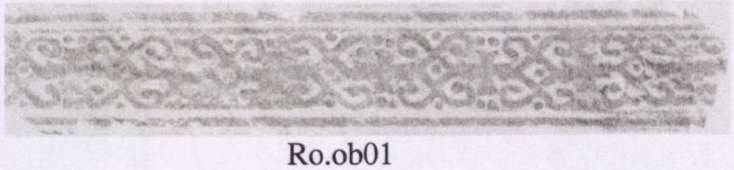
Ho.ao08

Hf.rs15



Lf.fw05

Tool 33



Ro.ob01

Tool 25

Rf.fw18

Tool 24

Rh.pr01

Ro.it07

Rf.fw43

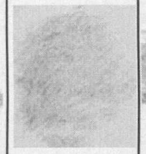
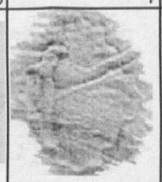
	Tool / Manuscript	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
																		
		Hf.st01	Ro.ob01	Ct.cx01	Ct.je02	Ct.cx06	Co.ao07	Ct.je05	Po.ao01	Lf.fw05	Ro.it07	Rh.pr01	Rf.fw18	Rf.fw43	Ho.ao08	Hf.rs15	Ho.ao47	Ho.ao15
1	S.A. 14	x										x						x
2	S.A. 158	x				x	x				x				x			
3	S.A. 234	x										x						
4	S.A. 327	x																
5	S. 85			x				x								x		
6	S. 476			x	x?													
7	S.942		x			x	x			x					x			
8	S. 952	x	x	x	x													
9	S. 954	x											x	x				
10	S. 1270	x	x	x	x													
11	S.1277	x										x						x
12	S. 1289		x															
13	S. 1310				x			?										
14	S. 1400	x	x	x	x										x			
15	S. 1508		x															
16	S. 1542	x	x															
17	S. 1990		x														x	
18	S. 2136		x					x	x						x			
19	S. 2197	x	x	x	x													
20	S. 2222	x	x	x	x											x		
21	S. 2319			x						x								
22	S.Pr.2728	x										x						

Table 3.1. 1 - List of finishing tools with their correspondence to the bindings of Group 4.

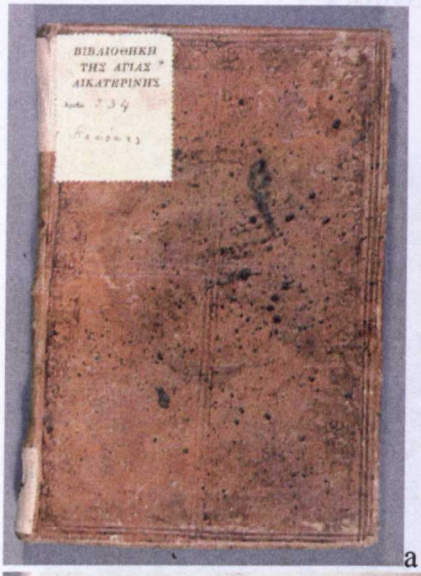
S.A.14

a b c d

S.A.158

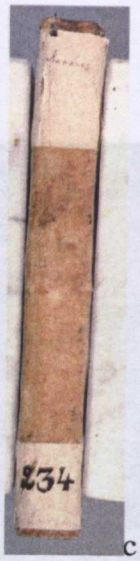
a b c

S.A.234



a


b



c


d

S.A.327

a

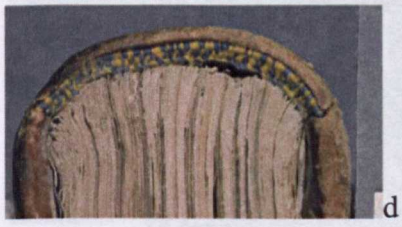

b

c


d

S.85

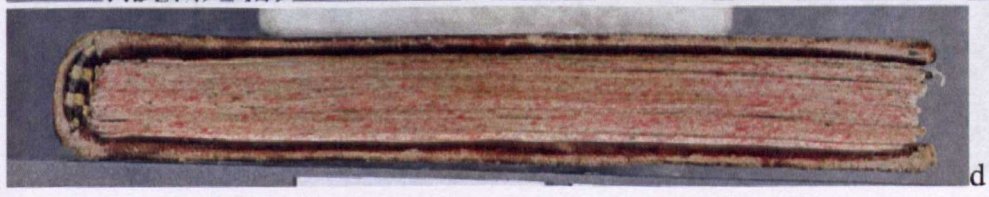
a b c



d

S.476

a b c



d

S.942


a


b

c


d

S.952


a


b

c


d

S.954


a


b


c


d

S.1270


a


b


c

S.1277


a


b


c


d

S.1289


a


b


c


d

S.1310


a


b

c

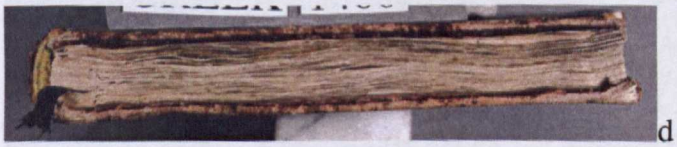

d

S.1400


a


b


c


d

S.1508


a


b

c

S.1542


a


b

c


d

S.1990


a


b


c

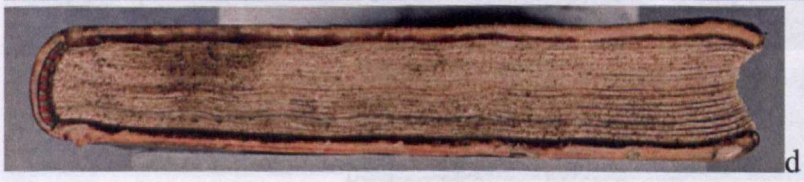

d

S.2136


a


b


c


d

S.2197


a


b

c


d

S.2222


a


b


c


d

S.2319

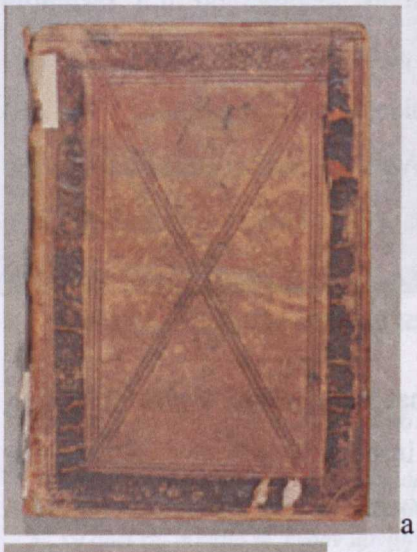
a


b

c


d

S.Pr.2728


a


b


c


d

3.1.8.1 Introduction

The group presented in this chapter belongs to the eighteenth century and it reflects, along with a few other groups presented, the most productive period of bookbinding in the history of the monastery, from which five different bookbinding workshops have been identified (*Group 4, Group 12, Group 18-"New Library", Group 22, Group 57*). This group is composed of 22 bindings in total. 21 are bindings on Greek (17) and Arabic (4) manuscripts and there is also one binding on an eighteenth century printed book that were all made at the monastery, c.1757-1777. The manuscript texts include one *New Testament* (**S.158**), one *Book of Services*, (S.234), *Sayings of the Fathers* (**S.327**), an *Old Testament*, an *Ascetica* (**S.476**), *Horologia* (**S.942, S.952, S.954, S.1400, S.2222**), a *Book of Canons* (**S.2136**), an Euchologion (**S.1990**), one of various texts (**S.2197**) and several music manuscripts (**S.1267, S.1270, S.1277, S.1278, S.1289, S.1310, S.1508, S.1542**). Fourteen of the bindings are original to their textblock and seven (**S.A.158, S.A.327, S.85, S.954, S.1400, S.1542** and **S.2197**) are rebindings of older manuscripts. These bindings follow a style which had been fashionable both in western and in eastern European bookbinding in the eighteenth century, using a combination of different types of tool to achieve their decoration. Although these books were bound within a Greek monastic community, possibly by a Greek binder, their features do not resemble traditional Greek structures. A large number of tools, all used in blind, were used to decorate these bindings, including centre pieces, corner pieces, rolls, small hand tools and multi-line tools. Three of the tools impressed on their covers were discovered among the finishing tools (Part 2), a fact that undoubtedly allows us to attribute these bindings to a workshop at the monastery or at one of its dependencies.

3.1.8.2 Paleographic Notes

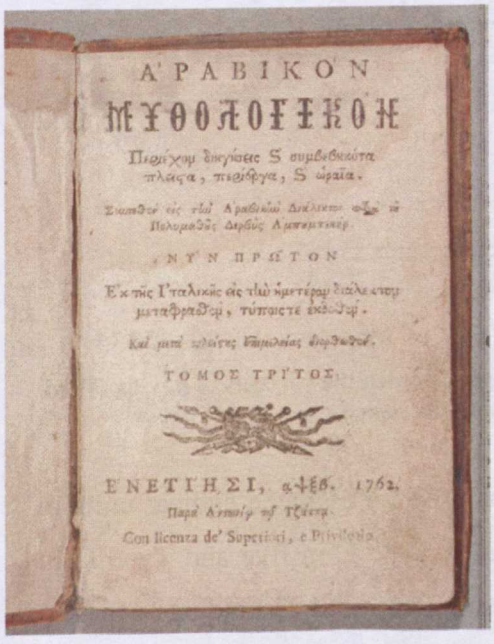
Seven manuscripts contain some scribal or other notes that have proved useful for dating the bindings of this group. They contain similar information that confirms the relationship between them and the time their bindings were made. All seven of these bindings (**S.A.234, S.942, S,1270, S.2136**) are most likely to be the first on their manuscripts, a conclusion based on the lack of contradictory evidence, such as textblock spine fold repairs, indications of earlier sewing, or signs of an earlier cover or of other repairs. **S.A.234, S.942** and **S.2136** have colophons dated 1771, 1770 and 1777

respectively. Moreover, in **S.942** it is stated that the manuscript was written by monk Nathanaelis Sifnios[42] on Mount Sinai in 1770 (Gardhausen, 1886, p.201).

In **S.1270**[43] we read:

> f.182v: *"From the (collection of the) library of the Holy Mount Sinai which the treasure keeper, Mr. Ananias, brought from Egypt, to be kept within the Archbishop's library. January 17, 1764."*[44]

S.1277 is a music manuscript that contains a collection of psalms (*anthologion*). On f.47 there is a psalm by Petros Peloponnesios, who is referred to as "domenikos", from which fact, according to Balageorgos & Kritikou (2008, p.285) the manuscript can be dated to between 1764 and 1770.According to a colophon note, **S.1310** was written by two different scribes. On ff.150v-151r, one of the two scribes testifies to the date and place of writing of the manuscript:


ΑΡΑΒΙΚΟΝ

ΜΥΘΟΛΟΓΙΚΟΝ

ΤΟΜΟΣ ΤΡΙΤΟΣ.

ΕΝΕΤΙΗΣΙ, αψξβ. 1762.

Figure 94 - Title page of S.Pr.2728

"...In the monastery of Mount Sinai, by my hand, the humble, and worthless Prokopios by name, from Ioannina, the least and humblest of all priests, in 1757, 5 June..."[45]

The printed book, **S.Pr.2728,** contains information on its surviving title page that reads: *Arabic Mythology, Vol.3 (Venice), αψξβ' (1762). , Published by Antonio Zatta, con licenza de'Superiori, e Privilegio.*[46]

The date of publication of this book corresponds well with the dates of the above dated manuscripts

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[42] Ναθαναέλης Σίφνιος

[43] Balageorgos & Kritikou 2008, p.266 date this manuscript to the first half of the eighteenth century based on paleographic correlations.

[44] *"Εκ των της βιβλιωθίκης του αγίου όρους Σινά την οποίαν ήφερε από ήγυπτον ο σκευοφύλαξ παπά κύρ Ανανίας, ινα ευρίσκεται εις την βιβλιωθίκην του αρχιεπισκόπου. αψξδ (1764) ιαννουαρίου ιζ"*

[45] *«...εν όρει τω σιναίω τε, ένδον μοναστηρίο υπό χειρός του ταπεινού, καμού του τρισαθλίου προκοπίου τούνομα, του εξ Ιωαννίνων ελάχιστος και ταπεινός ιερέων αξίων εν επτακοσιοστώ γαρ πεντικοστώ ευδόμω προς τοις χιλίοις άμα δέ, τη ε' Ιουνίων, αυτή γάρ πέλει αληθώς, του ιεροδιακόνου παρ ο΄θ δαπάνην λάμβανα, του γ΄ραφειν μετά πόθου τούνομα γάρ μελχισεδέκ, άστεος δ'από Κρήτην, καλώτατα καγώ αυτόν, γνωρίζω σιναΐτην,...»*

[46] *Αραβικον Μυθολογικόν, Περιέχον διηγήσεις κ' συμβεβηκότα πλείστα κ' περίεργα, κ' ωραία, Τόμος Τρίτος, (Βενετία) 1762. Τυπ. Αντωνίου Τζάττα, con licenza de'Superiori, e PrivilegioArabic Mythology*, Vol.3 (Venice), αψξβ' (1762)

and it is most likely that this book arrived unbound at the monastery or in a temporary binding, to be bound soon after in the monastic bookbinding workshop discussed here.

3.1.8.3 Material and Structural Similarities

a) Endleaves and watermarks

The endleaf units recorded from these bindings present some irregularities, even between the two endleaf units of the same book. Based on the surviving evidence, the binder/s was/were familiar with five main variations of endleaf formats which were employed randomly throughout the 22 structures discussed. These include the following main types:

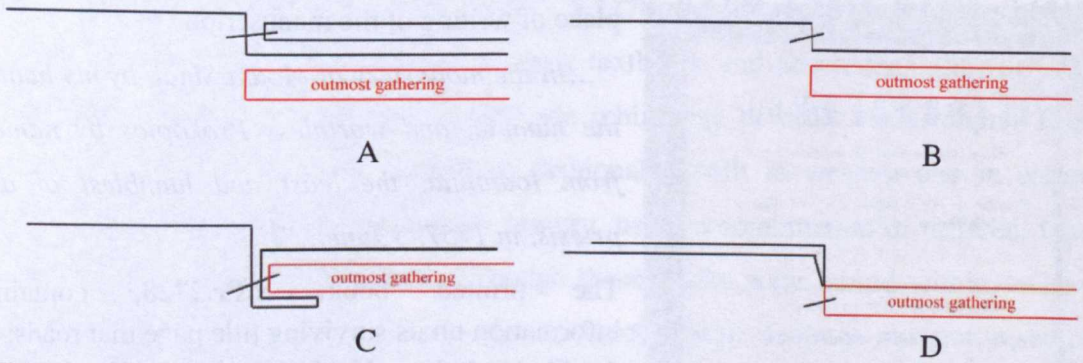


Figure 95 - Endleaves types in *Group 4* bindings. Type D appears with the variants of having either one or two leaves pasted down onto the board.

Type A is the most common endleaf format and was used for eighteen endleaf units in nine different bindings. Type B appears in seven units, Type C in five and Type D in fourteen, combined in random variations between them within the 22 bindings and also randomly between their left and right boards.

All the endleaves were made with western papers, apart from those of **S.A.14** that are of heavily burnished eastern paper that is the same as its textblock paper. Some endleaf units are made from older manuscript waste, and many have watermarks (**S.A.158, S.A.327, S.85, S.954, S.1270, S.1289 S.1400, S.1508, S.1990, S.2222**). Unfortunately these watermarks have not been useful for dating these bindings, as it has not been possible to match them to identified and published watermarks, with the exception of the

watermarks in the left endleaves of **S.2222.:** *three crescents,* similar yet not identical to *IT-BMF-disegni-A17* (Watermark Database of the Dutch University Institute for Art History), dated to the late seventeenth-early eighteenth century.

b) Sewing

There is one predominant type of sewing used for all the textblocks of this group, found in three variants: a supported-sewing structure, sewn on three, four or five single, twisted-cords, with change-over stations near the head and tail edges of the bookblock.

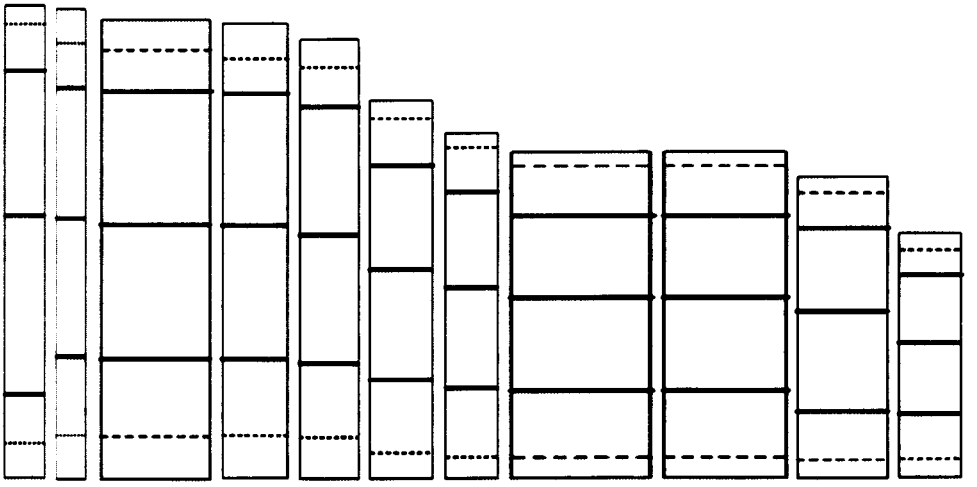


Figure 96 - The sewing of S.476, S.222, S.85, S.2197, S.1270, S.1990, S.A.234, S.952, S.1542, S.1508 and S.1310 (left to right) on three sewing supports.

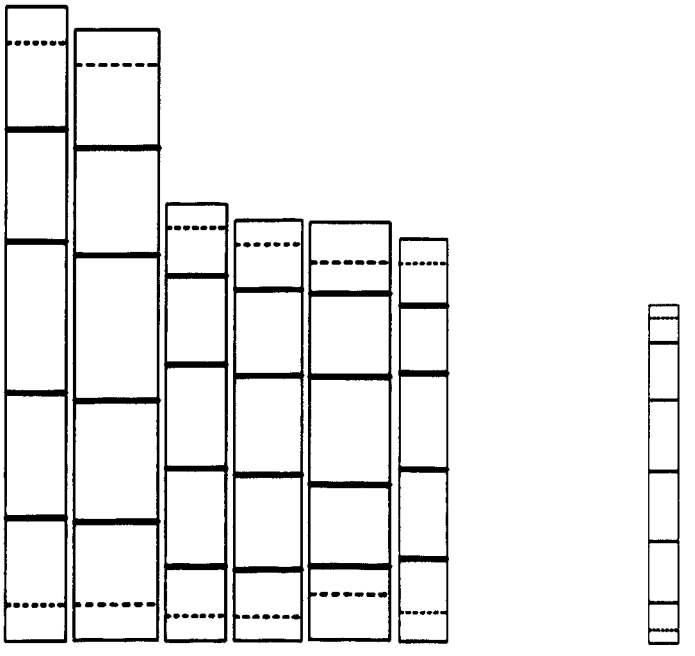


Figure 97 - The sewing of S.2136, S.A.158, S.942, S. A.327, S.954, S.1400 on four seing supports and S.1289 on five

The drawings show that there is a consistency in the proportions and distances between the sewing supports on the bindings and also that the number of sewing supports is related to the size of the textblocks: three stations for the smaller volumes and four for the larger ones. **S.1289** is the only exception, in that it has five sewing supports, even though it is one of the smallest books in this group. It is also important to stress that the change-over stations are between 15 and 25mm from the edge of the head or tail in all the bindings, regardless of the size of the textblock or the number of sewing stations.

c) Boards

The boards identified in these bindings are mostly made from laminated paper, between 2 and 4mm thick. Manuscript waste paper was included in the lamination only in the right board of one binding (**S.2222**), while the others are all of plain paper. All the boards were made to have a square around the edges of the textblocks, which is supplementary evidence of a bookbinding style following post-medieval western techniques.

The boards in every one of these bindings are attached to their textblocks by lacing the cord supports through the boards. However, it has not been possible to establish the exact method of lacing in of all the bindings, since in many it is not visually accessible.

d) Endbands

The endbands encountered in this group present a large variety in appearance, while being made according to two techniques that are common in western bookbindings. The first is a single core with a front bead and the second is a double core with a front bead, both of which are made with a secondary endband sewing over plain, wound, primary sewing. The cores encountered are all of cord, and none show signs of a board attachment. In addition, they have tie-downs every few sections and not consistently in every section. The variety referred to above lies mainly to the choice of colours used for the secondary sewing. Red and green (6), blue and yellow (5), black and white (1), red and white (1) and black, red and white (1) are some of the combinations of colours recorded.

e) Covering

Special reference should be made regarding the covers of thirteen of these bindings (S.A.14, S.A.158, S.A.234, S.A.327, S.476, S.1270, S.1277, S.1289, S.1400, S.1508, S.2136, S.2197, S.2222). Even though all 22 bindings are covered with goatskin, only these thirteen are also clearly similar both in colour and texture as well as damage on the surface that shows the leather to have common characteristics. The colour of the leather is a light reddish brown, and it is soft in a way which resembles sheepskin, especially in the way in which it delaminates. Further analysis of the skins would be needed to confirm the visual assessment that they may have derived from the same source.

3.1.8.4 Decoration

The decoration of these 22 bindings is characterized by the presence of several large centre-pieces usually combined with rolls, in a fashion that evidently shows western influence. Decoration is exclusively in blind, with the exception of **S.1542** where gold tooling with only one small hand tool was attempted, though it was applied unsuccessfully. The presence of certain identical tool impressions on all the bindings, impressed within similar layouts, has helped to link the bindings and to attribute them to one workshop.

a) Decorative layout of the covers

Ten bindings have layout J2 and four more bindings have close variants of this layout, such as J1, J9 and J14. Two bindings (S.A.327, S.1277) have the similar layouts B6 and B2 respectively. The layout A2 is recorded on three further bindings, while D3 and I5 were recorded from one binding each. The majority of the above bindings have also similar spine decoration. Out of the 18 bindings which have decorated spines, pattern d2 is used on 17 covers and pattern e4 on **S.1508**. Moreover, three tools only were selected for decorating the spines (Hf.st01, Ho.ao08 and Hf.rs15).

The above layout patterns are all related to European bookbindings across a wide geographical area and period, which also influenced Greek binders. The use of centre-pieces with theological representations was frequently found in combination with the layouts J1, J19 and J14 and appear contemporary to the date of the bindings.

b) Finishing Tools

There are 17 tools recorded in total from the bindings of this group. These include one panel, five centre-pieces, one corner-piece, five rolls and five small hand tools. The centre-pieces have theological scenes, such as the crucifixion and the *"Pantocrator"*, as well as abstract ornamental motifs. Two rolls and the corner piece have been particularly useful for dating and locating this group of bindings. These tools are listed within the finishing tools discovered at the monastery (PART 2).

The majority of the impressions were deep enough to allow for good rubbings to be taken and hence to compare them more easily. On the table below (table 3.1.13) the rubbings of the small hand tool and the roll impressions show unmistakable correspondence and are identified as being made by the same tools.

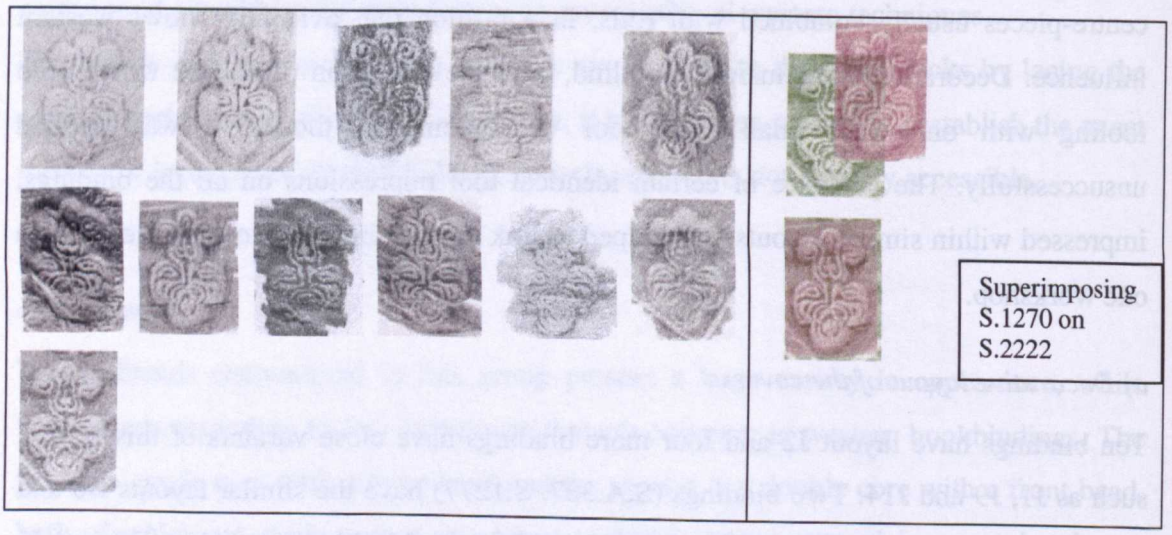
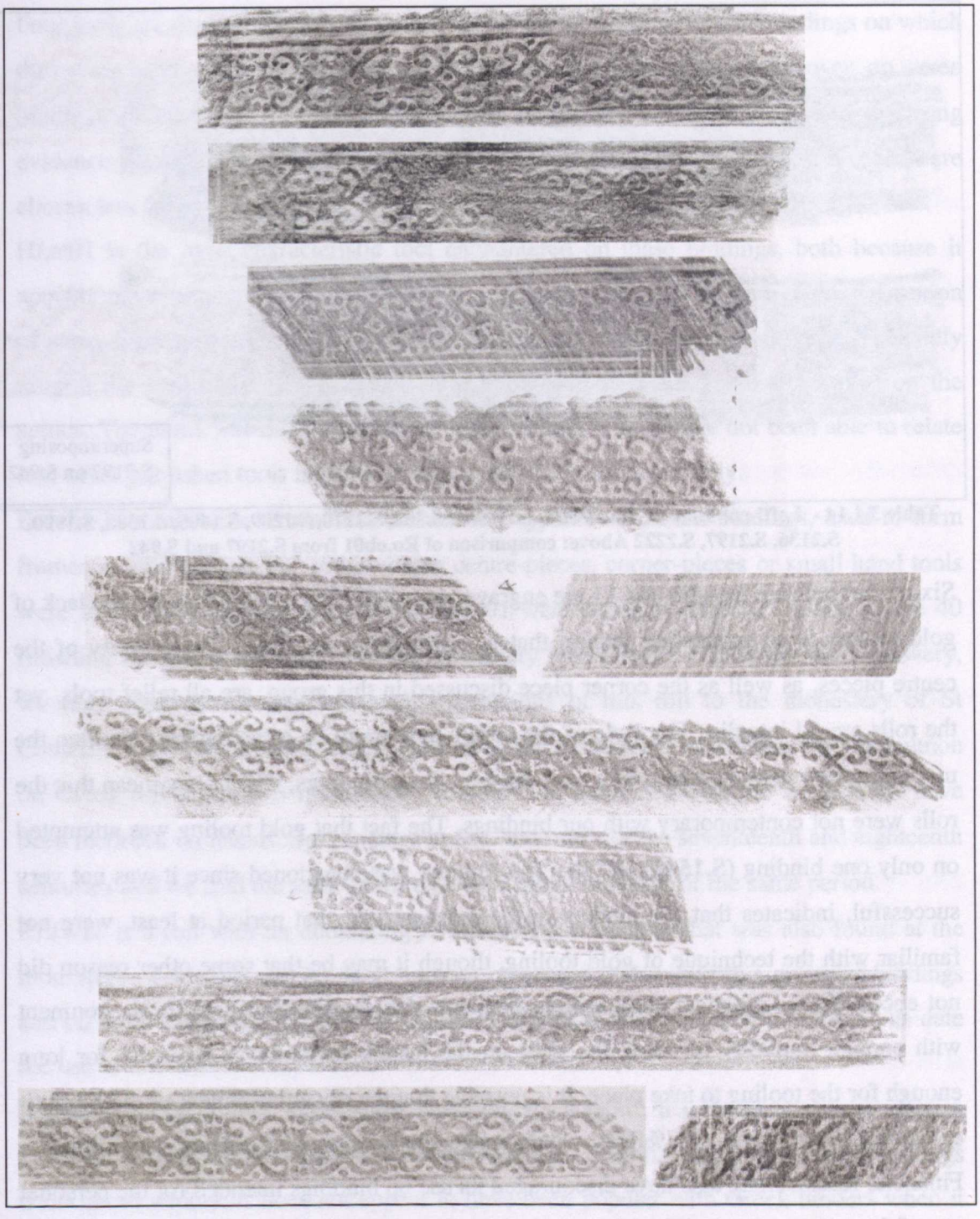


Table 3.1.13 - Left: rubbings of Hf.st01 from S.A.14, S.A.158, S.A.234, SA.327, S.952, S.954, S.1270, S.1277, S.1400, S.1542, S.2197, S.2222. Right: comparison of Hf.st01 from S.1270 and S.2222



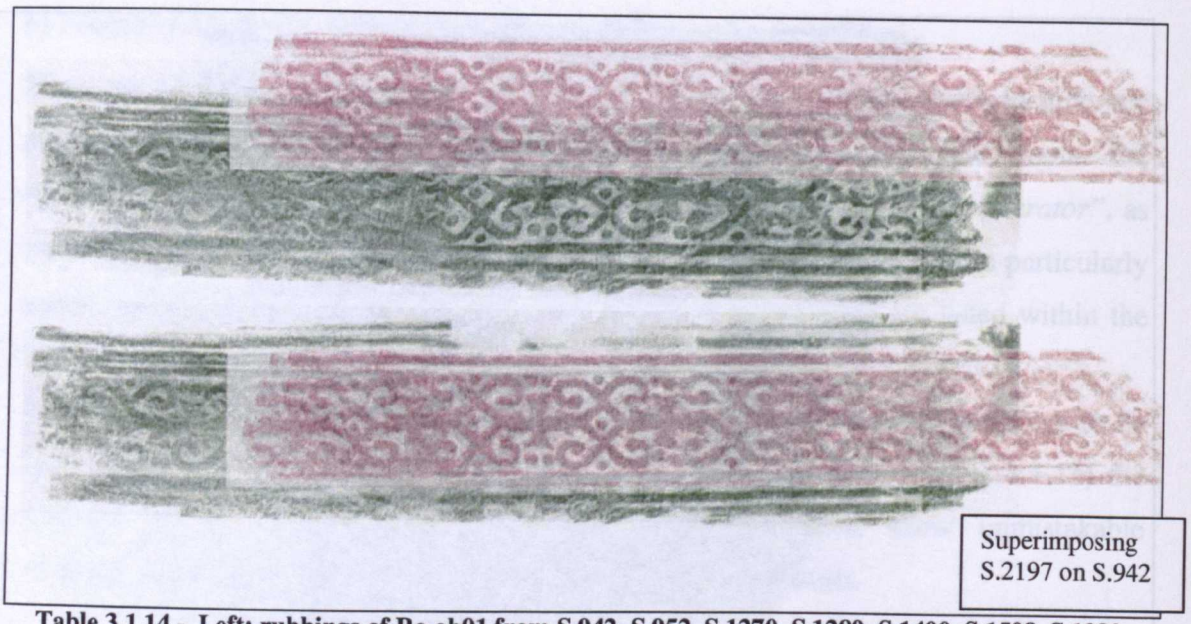


Table 3.1.14 - Left: rubbings of Ro.ob01 from S.942, S.952, S.1270, S.1289, S.1400, S.1508, S.1990, S.2136, S.2197, S.2222 Above: comparison of Ro.ob01 from S.2197 and S.942

Six of the tools are intaglio and 11 are engraved in relief. This fact, along with the lack of gold tooling is an interesting feature that is worth some attention. The majority of the centre pieces, as well as the corner piece discussed in this group, are all relief tools, yet the rolls are all intaglio. The style of the motifs appears to be of an earlier type than the mid-eighteenth century when they were used on these bindings, which may mean that the rolls were not contemporary with our bindings. The fact that gold tooling was attempted on only one binding (**S.1542**) and that this attempt was abandoned since it was not very successful, indicates that the binders in the monastery at that period at least, were not familiar with the technique of gold tooling, though it may be that some other reason did not encourage its practice. Gold tooling demands that the binder works in environment with enough humidity to allow the glair on the leather to retain its moisture for long enough for the tooling to take place. It is possible that the dry environment of the Sinai (it can reach a low level of 7%RH), would make the process of finishing very difficult. Financial reasons may also have discouraged its use on bindings intended for the personal use of the monks, since gold leaf would have been a considerable expense or, as Boudalis (2004, p.354) suggests *"considering the fact that most of the bindings considered [in his thesis] were made in monasteries [and were] destined to be used in monasteries, therefore though luxury often played a role this was not the primary one"*.

Four tools are distinguished from the set used, based on the number of bindings on which they were used, each appearing on between seven and 13 bindings. Moreover, on seven bindings at least two of these tools appear together, which provides us with strong evidence that these tools were used by the same workshop. The rest of the tools were chosen less frequently and appear on between one and four bindings.

Hf.st01 is the most characteristic tool encountered on these bindings, both because it appears more frequently and also because it occupies a significant part of the decoration of every binding it appears on. The floral tool was impressed in several ways: repeatedly around the centre-pieces, positioned as a corner-piece, forming crosses and/or on the spines. The motif was most probably of western origin, yet I have not been able to relate it to other published tools in order to date or place it more accurately.

Ro.ob1 is a roll with ornamental crosses and appears on eleven bindings, used to form frames around the boards, within which centre-pieces, corner-pieces or small hand tools were impressed. The impressions of Ro.ob01 were made by TOOL 25 – one of the 40 finishing tools that were found at the monastery (see Part 2). Following this discovery, we may attribute the bindings with impressions of this roll to the monastery of St Catherine or to a workshop directly related to the monastery. Its motif is not uncommon on Greek bindings. Two more rolls (Ro.ob07 and Ro.ob08) with the same motif have been recorded on manuscript bindings in St Catherine's of the seventeenth and eighteenth centuries and we find the same motif also on western bindings of the same period.

Rf.fw18 is a roll with an undulating *floral design* in intaglio that was also found at the monastery (TOOL 24, see 2.3.5). It appears only on **S.954** within this group of bindings and on three more bindings (**S.543**-*Group 12*, **S.999**, **S.1916**-*Group 18*) that help us date the use of this tool to c.1711-1790.

Rh.pr01 is another tool worth some attention. As a motif, it is undoubtedly of western European origin, and is found on numerous German, French, English and Dutch bindings if not more widely. It does not appear to have been popular with Greek binders when it was in common use in western Europe as no examples have been found which might suggest otherwise. Eastern European binders also used it and characteristic examples are found on Russian bindings, on which it was used extensively during the sixteenth and seventeenth century (Klepikov, 1961, Pl.IV)

The centre-pieces Ct.cx01 and Ct.je02 are the main central decoration used. In all but three bindings they appear together, Ct.cx01 on the left board and Ct.je02 on the right board. The origins of the tools is not know, but Ct.cx01 is engraved with Greek inscriptions (IΣ XΣ and IOΣIΦ) which would make it likely that it was produced in an environment with a Greek-speaking population. Yet, as a style these are certainly influenced by eastern European decorative motifs.

Finally, Po.ao01 should be mentioned. This panel appears only on one binding from this group (**S.2136**). but is found on 13 further bindings from the bookbinding group. *Group 18-"The New Library"* (Boudalis, 2004, pp.213-236 and App.I 7) that dates from c.1711-1790. From this we may deduce that this panel was in use at the monastery for a longer period than just the time it was used on **S.2136.**

3.1.8.5 Conclusions

In this chapter, 22 bindings on Greek and Arabic manuscripts and one on a Greek printed book from the St Catherine's collection have been discussed and linked to the same bookbinding workshop. This workshop is placed within the monastery of St Catherine's, which was, as we learn from several notes in the manuscripts discussed, active between the years 1757 and 1777 and possibly beyond this time-frame. This period coincides with a vigorous period for the monastery in terms of bookbinding and overlaps with or close in date to three more bookbinding workshops, which have been shown to have been working in the monastery during this period.(*Group 12, Group 18-"The New Library"* and *Group 22*). It also coincides with the period when the Archbishop of the monastery was Kyrillos B' (1759-1790), who is renowned for his great scholarly and publishing activity and his contribution to the acquisition and gathering together of manuscripts and printed books for the monastery (Digbasani, 1992, p.578-9).

The bindings of this group present great similarities in both structural features and decoration, as has been discussed in the course of this chapter. Two sewing methods that follow a clear and consistent pattern are nearly identical across all the bindings, and relate also to the height of the textblocks sewn. The boards used and the make-up of the endleaves are also very similar in the majority of the bindings, all of which is evidence that they are the products of one workshop. Furthermore, the comparison by digital

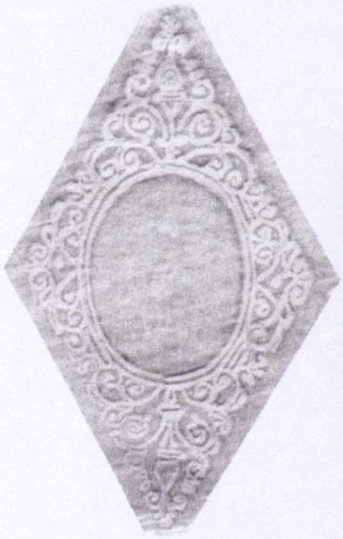
superimposition of the tool impressions recorded on these bindings has proved that the same finishing tools were used across the 22 bindings, although occasionally in different combinations.

By contrast, certain features displayed a variety in style and execution: The endbands were sewn using a similar technique but with a wide choice of threads and colours. The choice of skin for the cover was also not always consistent, apart from thirteen bindings on which almost certainly skins from the same source were used. Finally, the decoration is clearly executed with the same tools, but neither the choice of tools nor the layouts in which they are arranged is identical across all 22 bindings. It may be natural for binding work carried out by the same workshop in the course of approximately 20 years to show a variety of styles or even choice of materials, and this may explain the inconsistencies observed. However, we should also consider the possibility that this workshop consisted of more than one binder, and that they shared the same finishing tools and followed certain bookbinding techniques consistently, while they executed other parts of the binding work differently.

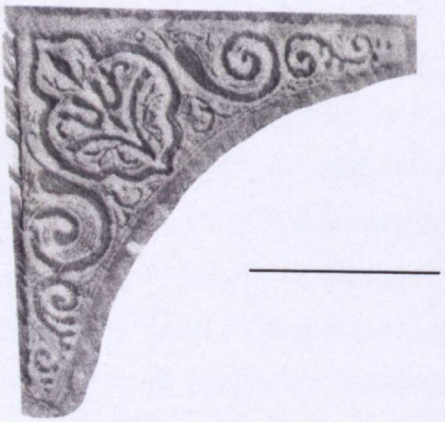
The bindings of this group therefore are grouped by features which are not always identical across the 22 bindings, but which offer evidence that these bindings were executed at the monastery at this specific period and which have close resemblances between them and, most of all, are decorated with the same tools.

It is evident from this group, among other examples that are discussed in the chapters to follow, that bookbinding work at the monastery during the middle of the eighteenth century had a prominently western style, entirely unrelated to the traditional Greek binding style. The structural features, such as the supported sewing, the squares of the boards around the edges of the textblock, the single or double core endbands with a front bead that are not attached to the boards in any way, are all western. The decoration also shows foreign influences, in particular the use of large centre-pieces with ecclesiastical representations and rolls and the decoration of the spines with floral small hand tools, which are of eastern European inspiration.

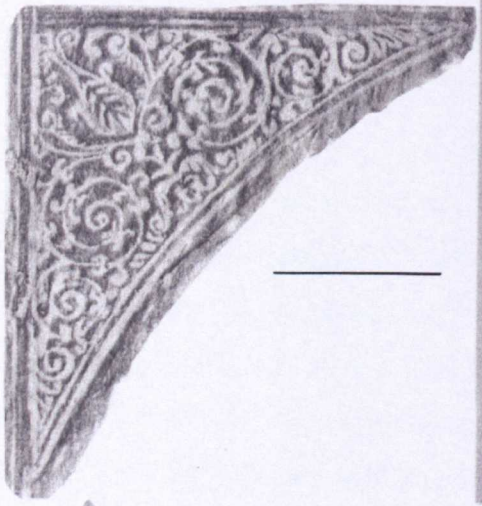
3.1.9 Group 67



Co.ao01



Lf.fw39

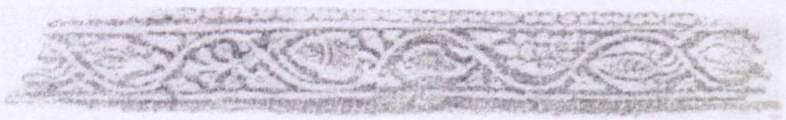


Lf.fw05

Ho.ao02

Ro.ob48

Rf.fw01



Rf.fw08

Rf.fw07

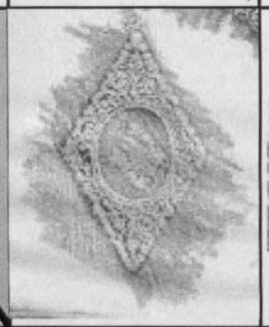
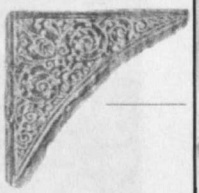
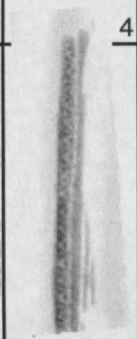
	Tool / Manuscript	1  Co.ao01	2  Ho.ao02	4  Lf.fw05-TOOL 33	3  Lf.fw39-TOOL 40	4  Ro.ob48	5  Rf.fw08	6  Rf.fw07	7  Rf.fw01
1	S.73	x	x		x	x		x	
2	S.93		x						
3	S.295	x	x	x		x	x		
4	S.488		x			x			x
5	S.692	x	x	x		x	x		

Table 3.1.15- List of finishing tools with their correspondence to the bindings of Group 67. (Rubbings not in scale)

S.73


a

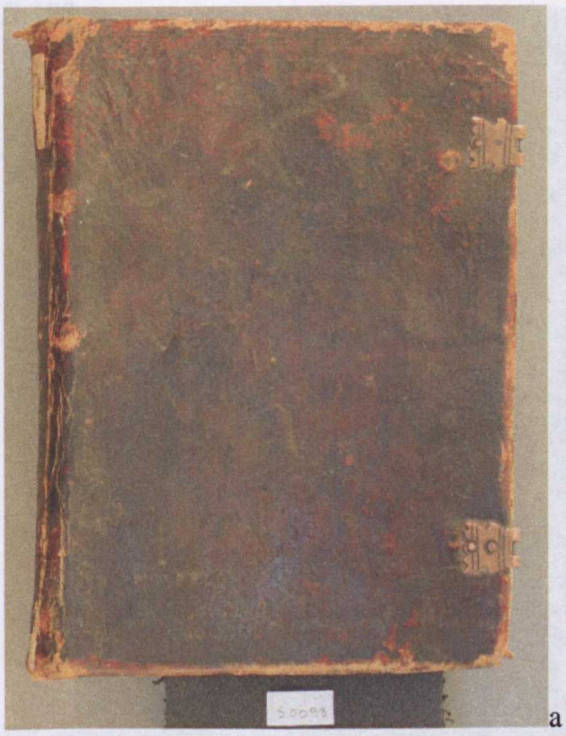

b

c

d


e

S.93


a


b


c

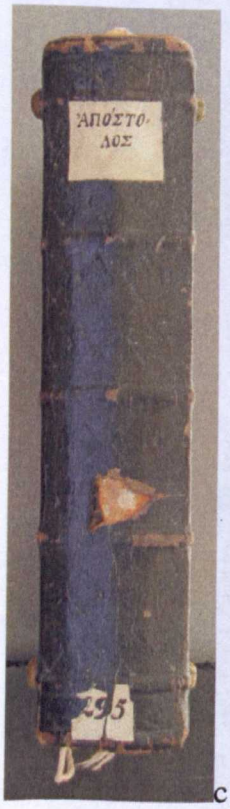

d


e

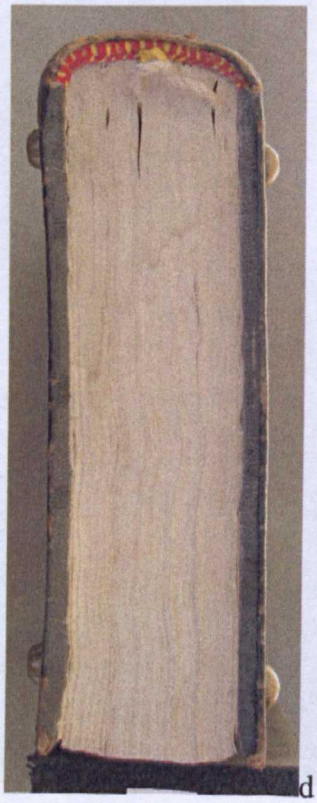
S.295


a


b



c


d

S.488

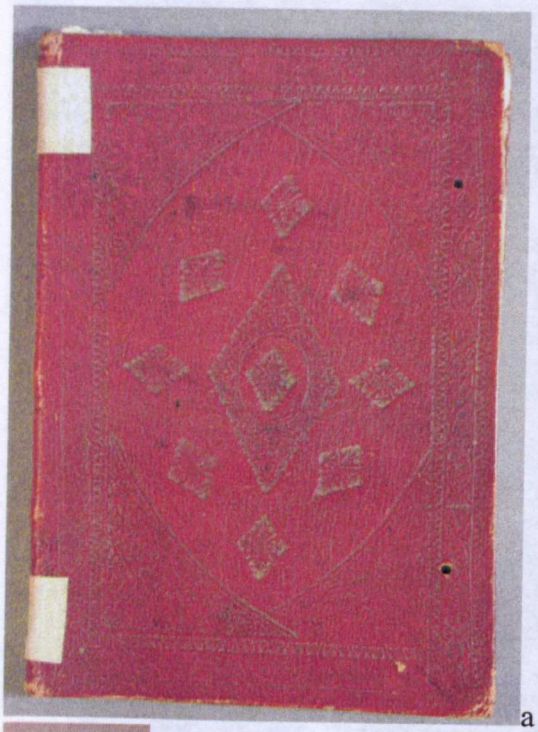

a

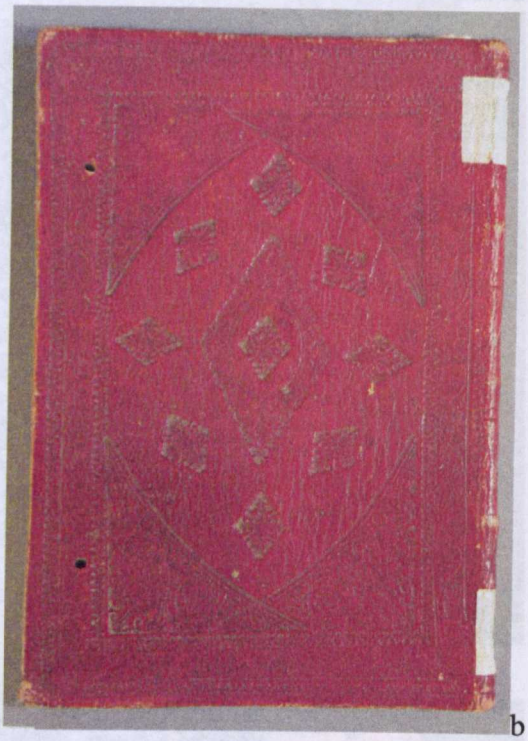
c


b

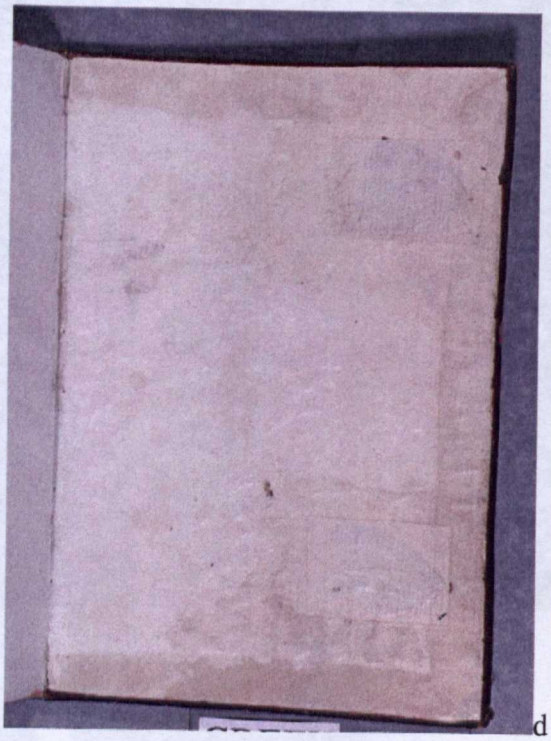

d

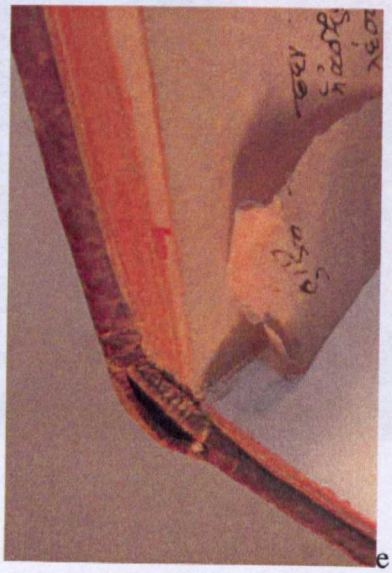
S.692


a


b

c


d


e

3.1.9.1 Introduction

This group consists of five bindings on Greek manuscripts that were decorated at the monastery of St Catherine around the end of the seventeenth century or at the beginning of the eighteenth century. The manuscripts contain a variety of texts, including the *Old Testament* (**S.73, S.92**), the *New Testament* (**S.295**), an *Anthology* (**S.696**) and *Ascetica* (**S.488**).

Two of the bindings (**S.93** and **S.488**) are the first to be made for the manuscripts they cover and the other three are re-bindings of older manuscripts.

The bindings of this group are a good example of finishing work being executed separately from the binding work and possibly by two or more different people. Their structures demonstrate a variety of techniques and styles of binding, which include western, Greek and Islamic features. They do not share structural similarities, which suggests that most probably different binders may have made them. On the other hand their decoration appears very similar, enough to suggest that they were tooled by the same person or in the same workshop. What is more, the tooling work must have been executed at or near to the monastery, as two decorative corner-pieces and a roll that were used on these bindings are among the newly-discovered finishing tool finds at St Catherine's. These tools are also used on a number of other St Catherine's bindings, from which we can confirm that a local workshop was responsible for the decoration of the bindings of this group.

3.1.9.2 Paleographic Notes

There are few notes in the manuscripts examined that bear significant information that can be related to the specific binding group.

In **S.93** a scribal note concludes at the end of the manuscript:

> *f.178: "Glory to the Lord, the end of the present (book) in the year 1664, in the month September the 21st, by the sinful monk Mattheos and whoever strains over this may he pray for him (for Mattheos)"*[47]

A different hand continues below:

> *"The present (book) was dedicated to Mount Sinai by monk Dionusios Fame[..]ktis so as to be commemorated. May whoever reads this be forgiven and whoever removes this unforgivable."*[48]

---

[47] *«Δόξα τω θ(ε)ώ, πέρας είλιφε το παρόν επί έτους αχξδ' (1664) μηνός Σεπτεμβρίου κα' (21) υπό αμαρτωλού ματθαίου ιερομονάχου κ' ο αγωνιζόμενος εις αυτώ ας εύχεται δι'αυτού»*

On the verso of the same folio another note informs us that it was already at the monastery by 1729:

> *f.178v: "The present Psalter belongs to the Mesi. And Gerasimos from Cyprus took it to read it in his cell. 1729 in the month of November."*[49]

In **S.295** a similar note in which the manuscript is dedicated to the monastery reads:

> *f.2v: "The present book of the Apostles was dedicated by myself, Theodoulos monk and spiritual Father, to the God-trodden monastery Mount Sinai."*[50]

A final note that is particularly useful in locating and dating this group is found in **S.692:**

> *f.27v: "The present (book) was written on the Holy Mount Sinai, in the year 1676. Finished in March 1st. [...] to commemorate the saint. Pray for the scribe..."*[51]

From these notes we can conclude that **S.93** and **S.295** were not written at the monastery; instead, they were imported and dedicated to it by monks of the monastery, while **S.692** was originally written at the monastery and was possibly bound there soon after.

3.1.9.3 Material and Structural Similarities

The five bindings show little evidence that they were made in the same binding workshop. It is clear from their external appearance that four of them are bound in the western style. The binding that stands out is **S.488,** which is made in a distinctly Islamic style with a foredge flap and marbled paper pastedowns. Closer investigation shows that the four western style bindings are each made very differently.

The first observation to make is that five different endleaf formats were used, and that no two of them seem to have been made with the same paper. The sewing of the textblocks is

---

[48] *«Αφιερώθει το παρόν υπό διονυσίου μοναχού του φαμέ(?)κτη. εις το σιναίον όρος δια μνημόσυνον αυτού όπου το διαβάζει συγχωρημ(εν)ος κ' όπου το ξενώσει ασυγχώρητος»*

[49] *«Ετούτο το ψαλτήριον είναι της μέσης. Και το επίρε ο γεράσιμος ο κυπρέως να διαβάζει εις το κελίον. 1729 κατά μήνα νοέβριο»*

[50] *«Το παρόν βιβλίον του απόστολου , αφιερό(σα) εγώ Θεόδουλ(ος) ιερομόναχος και πν(ευματ)ικός π(ατ)ήρ εις το θεοβάδιστο όρος σινά...αφλη' (1538)»*

[51] *«Η παρούσα εγράφη εν σιναίω όρος τω αγίω κατά τω 1676ω σ(ωτη)ρίω έτος. Τελειωθήσα μαρτίου α^η δ/ο οι την του αγίου μνήμην επιτελούντες. Εύχεσθαι υπέρ του γεγραφηκότα όπως ίλεως γενέσθω ο κ)ύριο)ς εις των αμαρτιών αυτού αβύστον.»*

unsupported in two bindings and supported in three bindings, using different techniques and numbers of stations in each one. The endbands are of a western style in three bindings, sewn on either one or two cores and laced into the boards. On **S.93** the endband is a hybrid Greek-Western type, of a *compact-chevron-with-crowing-core* type (Boudalis, 2007, p.42), laced into the boards and on **S.73** a western single-core endband with a front bead is sewn, the slips of which are laced in while the endband is also sewn to the boards. The colours of the threads used are also different. Finally, two different types of edge decoration were recorded from the two bindings that have decorated edges: red coloured edges on **S.93** (see photo S.93c) and red/green painted patterns on **S.488** (photo S.488d).

Only two similarities in the structural features of this group are observed throughout:

- The leather used for the bindings of **S.295** and **S.488** is a distinctive goat skin, of a characteristically dark black colour and a highly polished surface. The texture of the leather is very hard and it is also evident that on both these bindings the blind tooling did leave good impressions and is very shallow. It is quite possible that the same skin was used on these two bindings.
- The fastening clasps of **S.93** and **S.295** are very similar and may have derived from the same source, although they could also have been added at a later date. Numerous clasps with the same pattern are found on bindings in the collection both on the manuscripts and the printed books, and it would be worth investigating if there is a link between these clasps. It would be useful to identify when these were imported and by whom they were applied to the bindings, however this research was not possible within the scope of the current thesis

The above observations suggest that in terms of structural appearance and style this does not constitute a homogenous group of bindings. It is most probable that they were not made by the same person and it may also be the case that some of them were made at different locations. We should not, however, exclude the possibility that these bindings were the products of one workshop with a great sense of experimentation and an ability to produce bindings in a wide variety of styles, combining Western, Greek and Islamic bookbinding features, as well as the possibility that different people worked in the same workshop, each of whom had his own style of binding.

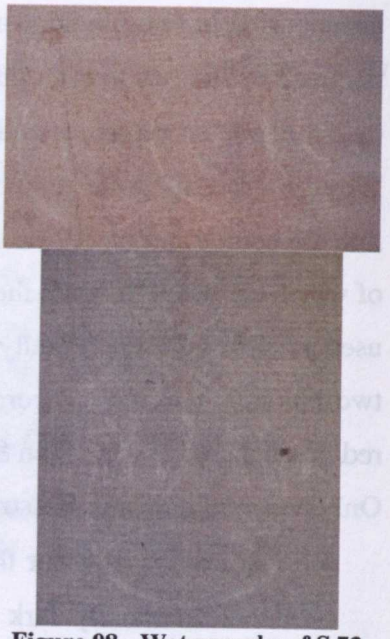


Figure 98 - Watermarks of S.73 (top) and S.295 (bottom)

There are two watermarks in the endleaves of **S.73** and **S.295**. **S.73** has a *three crescent* watermark that is similar to Heawood's watermarks 864-868, which date between 1610 and 1696. **S.295** has a *crown crescent and star* watermark that has not been identified with published watermarks, yet its closest similarity is with Heawood 1130-1133, all of which point towards the beginning of the seventeenth century.

3.1.9.4 Decoration

Although the structures of the five bindings are not identical in style and execution, their decoration is, by contrast, strikingly similar. The leather bindings are tooled in blind, making use of the same eight finishing tools.

The layout of the decoration is similar on all five bindings; moreover the repeated use of the small hand tool Ho.ao02 to form crosses on the covers in distinct patterns is further evidence to suggest that they were decorated by the same person.

a) Decorative layout of the covers

The predominant decorative layout is classified as J3, which is found in its exact form on the covers of **S.73** (fig.99), **S.295** and **S.692**. A different pattern classified as D3, is found on **S.93**; Also,instead of making use of a centre-piece, the covers of this binding have a central decoration formed by repeated impressions of the small hand tool Ho.ao02. This last feature is characteristic of this group. This particular tool is often impressed repeatedly and closely together, forming crosses, either at the sides of the centre-piece, or filling empty spaces in between the straight-line impressions, as in **S.488** (fig.99). The layout of **S.488** is classified as B2.

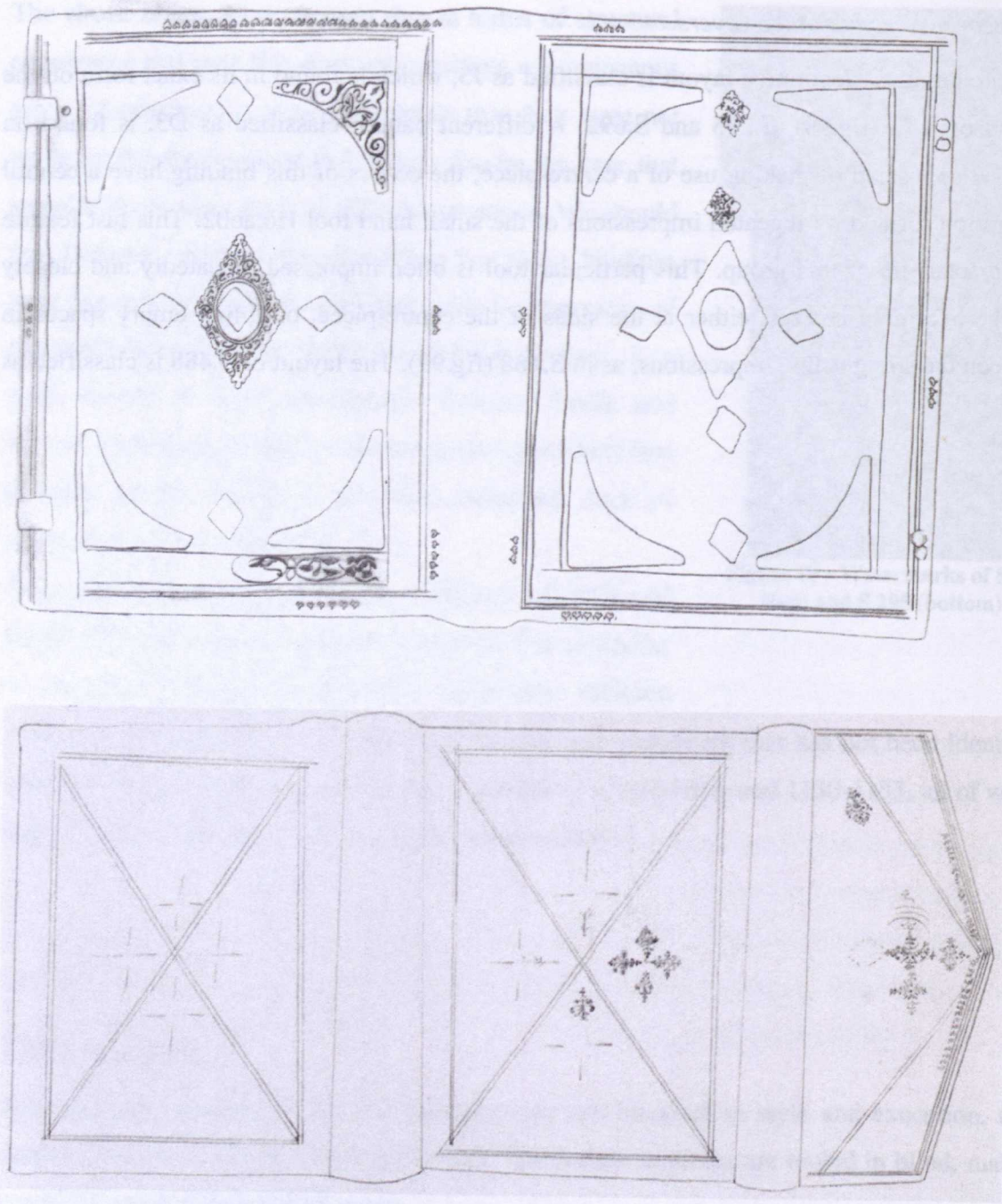


Figure 99 - Drawings of the decorative layouts of S.73 (top) and S.488 (bottom)

b) Finishing Tools

A total of eight tools has been recorded. These include one centre-piece, two corner pieces, four rolls and one small hand tool. All of them apart from one corner-piece, Lf.fw39, are engraved in relief and none of them was tooled in gold.

The centre-piece, Co.ao01, is a lozenge-shaped ornamental tool with a blank medallion at its centre. The blank space of the medallion is filled with the small hand tool Ho.ao02 in three bindings (**S.73, S.295** and **S.692**).

The corner-pieces are worth particular attention since the original tools were both found at the monastery among the finishing tool finds (see PART 2). Lf.fw05 (TOOL 33) is a one-sided brass corner-tool with a motif with flowers and branches. It is impressed on two bindings from this group and three other bindings (**S.100, S.460** and **S.942**) from the manuscript library of St Catherine's monastery. The latter belong to a date around the end of the eighteenth century (see 3.1.8 *Group 4*, p.17 and App.I 8 on *Group 22*), which demonstrates that this tool was in use for approximately 100 years after its initial recorded use on the bindings of this group. As with the centre-piece, the corner-pieces too are tools of a stylized floral design of western inspiration.

Lf.fw39 (TOOL 40) is a double-sided corner-piece with stylized flower and branch motifs engraved on both sides. However, only one of its sides has been impressed on the bindings in this group. This tool was discovered soon after the first finishing tool finds in July 2007, at a dig outside the walls of the monastery during construction work. The location of the find of this corner-piece suggests that the tool was once stored within the tower of the north wall of the monastery, were the 1975 manuscript fragments were discovered. Following the discovery and salvage of the fragments by the monks of the monastery, the remaining dirt that lay in the once hidden room was allegedly thrown outside the monastery's wall, right below the location of the room. This is the exact spot where this corner-piece was found[52], which allows us to speculate that the tool was once inside the room with the manuscript fragments and, failing to attract attention, it was thrown outside the walls of the monastery and got temporarily lost.

[52] The discovery of this tool was made by Father Daniel in October 2007, the treasure-keeper of the monastery at the time, while he was in charge of the construction work. I am indebted to Father Daniel for sharing this information with me.

The small hand tool Ho.ao02, appears on all of the bindings of this group, as well as on three additional bindings: **S.1600** from *Group 18*, on **S.2048** and on **S.1769.** This lozenge-shaped stylized floral tool is the predominant tool used in this group. It appears impressed repeatedly, often to build the design of crosses. It is also characteristic that it is impressed within the medallion of the centre-piece Co.ao01 on three bindings (**S.73, S.295** and **S.696**) and is the only tool to have been used to decorate a spine (**S.295**) and the foredge flap of **S.488.**

Two of the rolls used (Rf.fw01 and Rf.fw07) merit further discussion here. Although each of them appears on one only binding, they are both rolls that were used by other workshops on St Catherine's bindings at different periods. Rf.fw01 is a characteristic roll recorded on bindings from *Group 15* (*"Cairo Metochion"* workshop, Boudalis, p.151 and App.I 5) and *Group 16* (*"Giglio"* workshop, Boudalis, p145 and App.I 6) and was impressed on 29 bindings in total. The dates of some of these bindings indicate that this tool was in use at the monastery from at least the beginning of the seventeenth century. What is more, the original roll was discovered at the monastery among the finishing tool finds (TOOL 19 – 2.2.19), confirming that it was a tool used locally. Rf.fw07 has a similar history to TOOL 19, in that it was also a characteristic roll on many other St Catherine's bindings, many of which were also made by the *"Cairo Metochion"* workshop. It was again used from the beginning of the seventeenth century, but evidence from bindings of *Group 4* (3.1.8), on which it also appears, suggests that it continued in use until at least the end of the eighteenth century (c.1757-1777).

3.1.9.5 Conclusions

The binder/s or finishers of this workshop are not identified and their names or details of their work are not referred to in any notes in the five manuscripts. It is evident that the bindings themselves have more structural dissimilarities between them than similarities, enough to suggest that they were either completed by different binders or by one binder with a great sense of experimentation. Many of them show western techniques of binding, others a mixture of Greek and western and one is made in purely Islamic style.

It is their blind-tooled decoration that leads us to believe that there is a link between the five bindings, which is not only because they share the same eight tools, but also because these tools are impressed in a convincingly consistent manner.

It cannot be known if the binder of any of the bindings was also responsible for the tooling. The only evidence that is available regarding the location of the binding workshop is found in the note of **S.692,** which was written at the monastery in 1676. This fact, along with the assumption that the decoration was also executed at the monastery based on the tools that where found at the monastery, raises the question as to whether this book could have left the monastery in between to be bound elsewhere. Although it is not impossible, it would seem to be highly unlikely that this would be the case. Numerous bindings have been confirmed to have been made at the monastery during the second half of the seventeenth century, at the time that this group of bindings was made, indicating that there was a great bookbinding activity within the monastery at this time. It is unlikely that there would have been any need to send books away to have them bound. However, this does not exclude the possibility that the other four bindings arrived at the monastery bound and undecorated.

Despite the lack of notes and other archival evidence, it has been possible to identify two useful pieces of information about these bindings and their manuscripts. Firstly, that the finishing work is the product of one workshop that was located at or very close to the monastery. The fact that decorative tools used on the bindings in this group are among the 42 tools that were discovered among the finishing tool finds, and the fact that **S.692** was written at the monastery makes this speculation very likely. Secondly, the dates of the manuscripts, the few notes inside the bindings and the watermarks found on the endleaves all suggest a date around the end of the seventeenth century (c.1664-1676) for most of the binding work, and therefore the same date or a date soon after that for the tooling.

PART 3

CHAPTER 3.2: IMPORTED BOOKBINDINGS

3.2.2 Group 2

DECORATIVE TOOLS ON THE BINDINGS OF GROUP 2


Ha.li02


Hg.cr04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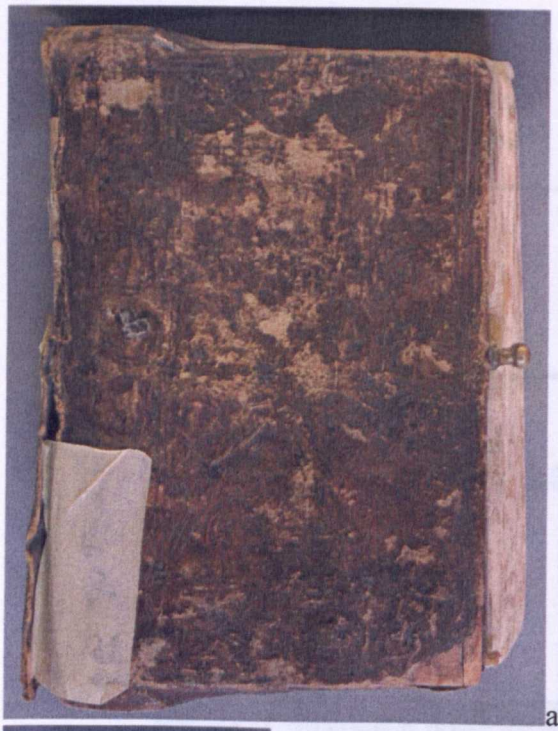
	Tool / Manuscript	1  Ha.li02	2  Hg.cr04	3  ~
1	S.712	x	x	
2	S.980	x		x
3	S.1991	x		x
4	British Library - Add. 11838	x	x	x

Table 3.2.1- Correspondence of manuscripts and the tools used to decorate the bindings of Group 2

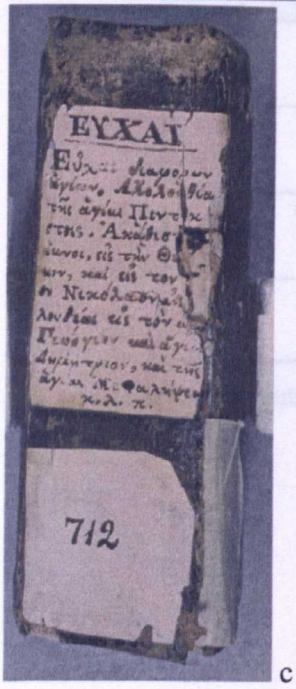
PHOTOGRAPHS OF BINDINGS IN GROUP 2

S.712



a

b



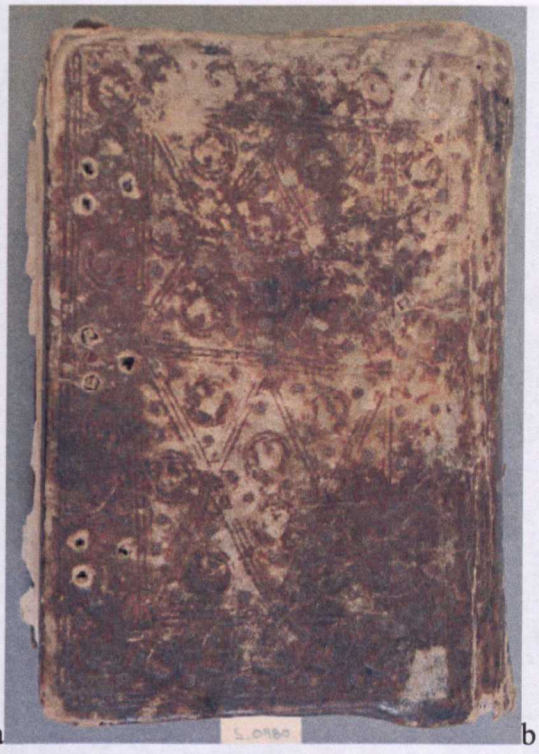
c

d (head edge)

e

S.980

a



b

c

d (head edge)

e

S.1991

a

b

c

d (head edge)

e (foredge)

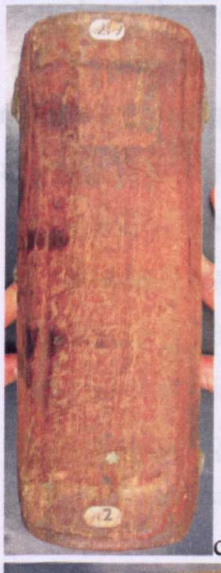
f

g (tail edge)

British Library Add.11838

a

b



c

d (foredge)

e - detail of tooling and of polished leather surface

g

f

g (head edge)

h (tail edge)

3.2.1.1 Introduction

The bindings presented in this chapter form a group of four bindings on Greek manuscripts that were made by the same workshop that can be shown to have worked during the last quarter of the fifteenth century. Three of these bindings are from the St Catherine's library and one is a prestigious illuminated Gospels manuscript now at the British Library, which however belonged to the St Catherine's collection until it was acquired by Samuel Butler, Lord Bishop of Litchfield (1774-1839), for his private collection. Inscriptions in the manuscripts suggest that this workshop was active possibly in the area of the monastery of Saint Saba in Jerusalem or in some other area of Syria, [1] while there is also a possibility that it was made at Sinai. Two of the manuscripts are in their first bindings (**S.712** and **BL Add.11838**) and two were rebound at least once before their current binding (**S.980**[2] and **S.1991**). The texts they contain include an *Anthologion* (**S.712**), an *Euchologion* (**S.980**), a *New Testament* (**S.1991**) and the *Gospels* (**Add.11838**). The binding of **S.1991** has been examined before by Boudalis (2004, pp.69-94) but was considered among the bindings of the *"Antioch"* group. Although the two groups consist of Greek bindings which have many structural similarities, it is clear that they are decoratively distinct.

3.2.1.2 Paleographical Notes

The manuscripts of the four bindings contain a wealth of information that allows us to both date and approximately locate the place where they were bound. **S.712** is a book of services and prayers to the Virgin Mary and St Nicholas which is signed and dated by its scribe:

> *f.226 :"by the hand of Diosysios the ragamuffin, in the year 1482, indiction 15, in the month of March, 19th, day 3"*[3]

In a cryptographic subnote on the same folio we read:

> *"By Dionysios of the Holy Community of Saba, saved be the scribe, blessed the processor. Amen"*[4]

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[1] The monastery of St Saba, or Mar Saba as is the Arabic name given to it, is a Greek Orthodox monastery that was built in 439A.D in the valley of Kedron - near Jerusalem and Bethlehem-, by Saint Sabas of Cappadocia. The monastery during the fifteenth century belonged to the province of Syria that was under the rule of the Mameluks, which included the cities of Jerusalem and Bethlehem.

[2] S.980 is a manuscript with composite texts. Parts of the manuscript have evidence of resewing and other parts may have been sewn for the first time in this binding.

[3] *«Διονυσίου του θυτορακενδύτου, εν έτει ζλζ', ινδ.ιε', εν μηνί Μαρτίω ιθ', ημέρα γ'.»* (Gardthausen, 1886, p.157)

S.980 consists of a composite textblock written also by different hands. One part of it is dated and was written a little earlier than **S.712**, while another cryptographic note mentions the same name Dionysios. The composite text is a *Typikon*[5] of the monastery of St Saba, however, this manuscript seems to have been completed in Mount Sinai:

> *f.338: "Completed at the Holy Mount Sinai, April 7th, day 6, 3rd hour of the year 1475."*

On f.338v a cryptographic note reads:

> *"The sinful so-called Dionysios and ragamuffin, whose name is Raidos, the Peloponnesian, from the castle of Corinthos, God's praise"*[6]

What is more revealing is a note written on the left pastedowns, by a hand that seems identical to that of the scribe of the above, dated colophon note. It reads:

> *"In the year 1472 I came to Syria"*[7]

Further paleographical research would be important to clarify whether the scribes who sign as Dionysios refer to the same person as that of **S.712**. In any case, it appears that both of these manuscripts have a connection with Syria and St Saba, either as proof that they were completed there or by evidence that their scribe was there at some point before its completion. The manuscript **Add.11838** of the British Library is a book of the Gospels, with lavish illustrations of the four evangelists at the beginning of each Gospel. Unlike the other three paper manuscripts, this one is written on parchment. A colophon note informs us that it was completed in the year 1326 by a certain Constantine, a priest and notary of the monastery of St Demetrius, commissioned by Kallinikos, a monk and archimandrite of the same monastery. Unfortunately, the location of the specific monastery has not been identified. Herbert (1908) mentions that this may have been a monastery in the neighbourhood of the monastery of Saint Catherine, but this cannot be confirmed, as there are no records to prove the existence of a monastery dedicated to St Demetrios in the Sinai Peninsula.

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[4] *«δηονυσήου του αγηωλαβροσαβαήτου: σόθει ο γράψαι, ελεηθέη ο έχων. αμήν.»* (the cryptographic note was deciphered by Gardthausen, 1886, p.157)

[5] A liturgical book which gives instructions on the services and way of life of the monastic orders of the Eastern Orthodox Church. The typikon of St Sabas was the standard typikon for the Eastern Orthodox monasteries until the nineteenth century.

[6] *«Αμαρτολως διονυσιος και ρακενδιτης ου το επικλιον ραιδος(;) πελοπονυσιος εκ καστρου κορηνθιος εν κ(υρι)ω χαιροβ»* .» (the cryptographic note was deciphered by Gardthausen, 1886, p.213)

[7] *«εις αυοβ' (1472) ήλθα εις τ(ην) συρίαν»*

The manuscript however, belonged to the monastery of Saint Catherine until the beginning of the nineteenth century. A note on the left pastedown confirms this and gives an account of the circumstances of its removal. It reads:

> *"This manuscript was procured from the monastery of Mount Sinai. It appears to have been written A.D.1326. It has the history of the woman taken in adultery. I gave about 100 guineas for it. S.B"* (fig.100)

The armorial stamp below the note reads *"Bibliotheca Butleriana"* and refers us to Samuel Butler, Lord Bishop of Litchfield (1774-1839), a well-known collector of Greek and Latin manuscripts, whose library was subsequently acquired by the British Museum.

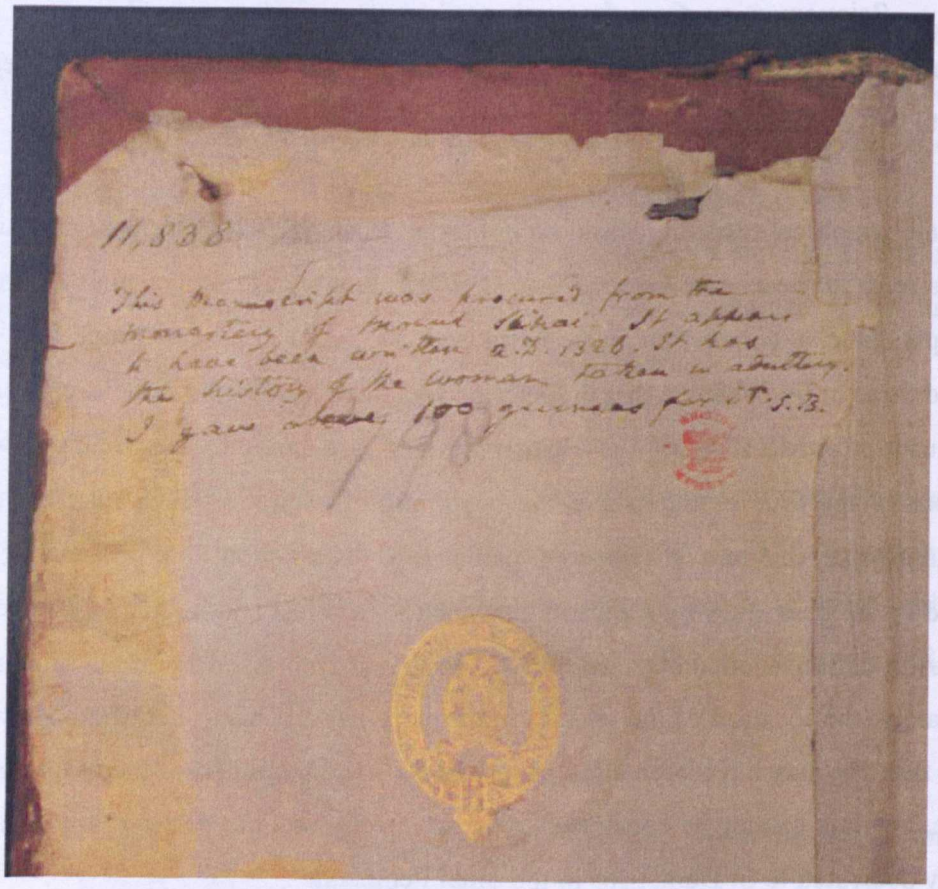


Figure 100 - An inscription on the left pastedown of S.1991 by the hand of Samuel Butler, Lord Bishop of Litchfield

The circumstances by which this manuscript was sold to Samuel Butler are not known, yet it is clear that this manuscript was part of the St Catherine's collection.

3.2.1.3 Material and Structural Similarities

a) Endleaves

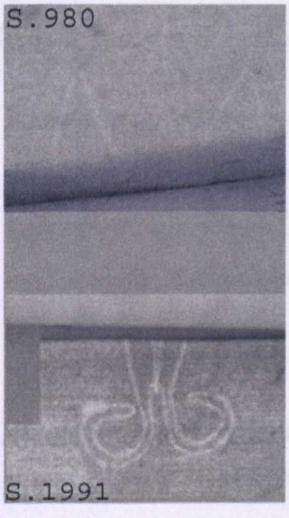
All four of the manuscripts have endleaves made of western paper; however, none of these have the same format, not even between their left and right boards. Nevertheless, some watermarks have been identified in three bindings (**S.980, S.1991, Add.11838**) that help us date the bindings. What is more, the watermarks in two of the bindings are identical, which is added proof that the bindings were made in the same workshop.

S.980 has two different kinds of paper in its endleaves, identified by three different watermarks:

- A *balance within a circle and arrow,* similar to Briquet 2508 (Venice, 1481)
- The tip of a watermark that resembles *scissors.*

S.1991 has two watermarks in its right endleaves:

- A *balance within a circle and arrow,* identical with that of **S.980,** identified with Briquet 2508 (Venice, 1481)
- The handle of a watermark with *scissors.*



Following the identification of the same *balance within a circle and arrow* watermark in **S.980** and **S.1991** it is very likely that the two parts of scissors found in the two endleaves are also from the same paper. The watermark that is seen in fig.101 consists of the two parts of the watermarks visible from the respective endleaves of the two bindings. Their composition appears similar to Briquet 3686 (Genova, 1460)

Figure 101 - *Scissors* watermark from S.980 and S.1991

b) Sewing

The four textblocks have been sewn with an unsupported sewing, on three, four or five stations according to the height of the textblocks. The sequence of the sewing has not been

identified in any of the four bindings. The threads used on these appear to be the same S-ply thread of medium thickness and medium twist, while in **S.712** and in **S.1991** it seems, from visual examination to be the same thread as that used for the primary sewing of the endbands.

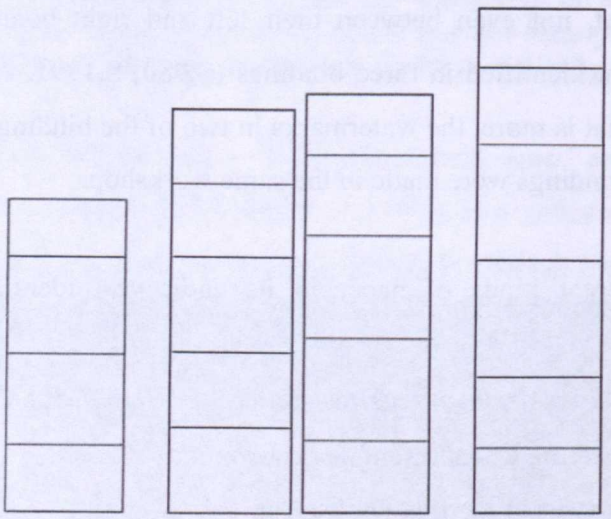


Figure 102 – Sewing stations on the textblocks of S.712, S.980, S.1991 and Bl-Add.11838

c) Boards

The boards of the four bindings are made of wood. However these could only be observed adequately on **S.1991,** which, based on visual examination, can be identified as beech. The three external board edges are flat in all four bindings, with the spine edges only being shaped with a cushion according to the following diagram:

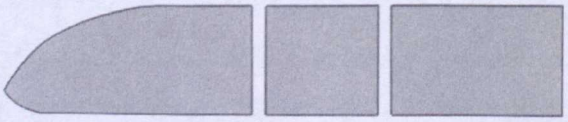


Figure 103- Board profile at the spine edge on the four bindings of *Group 2*

d) Endbands

The endbands on the four bindings of this group are two types of typically Greek endbands, which extend over the edges of the boards and are sewn into them. **S.712** has a simple Greek double-core endband sewn on two thick cord cores without any secondary sewing. The other three bindings have the same double-core endband, which has secondary sewing on top, with silk threads woven in alternating colours to form a chevron pattern. The colours used for the secondary sewing are green-white on **S.980,** and green-red-white on **S.1991** and **Add.11838**.

Moreover, the white-coloured thread on **S.1991** and **Add.11838** forms a horizontal band in the middle of the secondary sewing (see photo S.1991d and Add.11838f).

e) Covering

All the bindings are covered with leather of a similar thickness, which, based on visual observation, can be identified as goat skin, of the same mid-brown hue. A characteristic feature of the leather that is observed more prominently on S.1991 and Add.11838 is their very polished surface (see photo Add.11838e). **S980** probably had the same polished effect, as can be seen in certain areas, but abrasion on its covers has removed most of the shine.

The leather turn-ins do not show any particular consistency in the way they are made. All of the bindings in fact have different turn-ins even between their left and right boards; they are not therefore a distinct feature between of the four bindings.

f) Furniture and Fastenings

All four bindings have a form of fastening attachment, while Add.11838 also has surviving bosses nailed to its boards.

The fastening that is identified is a common simple pin, while holes on the boards are the only remnants to suggest that straps would have once been attached. The remaining edge pins on **S.712** and **S.1991** are made differently. Moreover, on **S.980** there three sets of holes on the boards, instead of one set which suggest that replacement fastenings where at some point introduced, at least on this binding if not for all four.

Bosses were added in two of the four bindings (**S.1991** and **Add.11838**), however only those on Add.11838 survive. They are iron almond-shaped solid bosses that were placed on the four corners of each board, while a round rosette-shaped iron boss made in one solid piece was added at the centre of the right board. The bosses on **S.1991** have not survived, yet outlines of the bosses are left on the leather, which indicate that the same almond-shaped bosses were used.

a b

Figure 104 - The two types of bosses surviving on the boards of Add.11838: a) the almond-shaped boss on the corners, b) the rosette-shaped boss on the centre of the right board

S.1991 is distinct however for more outline marks on the leather that indicates the existence of several metal plates (see photo S.1991a). They constitute of a representation of the crucifixion, along with a figures on each side of the cross, which are the figures of the Virgin Mary and Saint John. Four smaller pieces were attached to the corners of the left board. Unfortunately, we cannot know if the metal plates were an original feature of the binding or if they were added at later stage.

g) Textblock edge decoration

The textblock edges of three of the four bindings were decorated with ink-drawn designs. Black and red ink of similar hues across the three textblock edges have been used, to draw interlace patterns, which are characteristically similar and must have been made by the same person (see photos S.712d, S.1991e, Add.11838d,g,h). Although these are decorative features that could have been added at a later stage on these bindings, it is curious to see that exactly the same design is drawn on these three bindings, while it has not been found on other bindings in the monastery.

3.2.1.4 Decoration

The bindings of this group have been decorated with blind tooling, making use of three identical small hand tools that are impressed repeatedly all over their covers, their spines and their board edges. The patterns in which they are arranged are not all identical; however the identical tools and the distinct way in which they are applied are convincing evidence that the bindings were decorated by the same person.

a) Decorative layout of the covers

Four patterns are recorded altogether. **S.712** has pattern B9 on both boards, **S.980** has C10, **S.1991** has A3 on its right board and C3 on the left, while **Add.11838** has pattern C3 on both boards (fig.105). All three of these patterns have been recorded on several Greek covers before and are not uncommon for Greek bookbindings (Regemorter, 1957, Pl.XIII, XV and XVI ; Federici & Houlis, 1989, p.66). The spines are decorated on three of the bindings: **S.980** has pattern b5, while S.1991 and Add.11838 have pattern c6. What characterizes the three spines is the fact that a concentric rings tool has been impressed repeatedly between the straight lines found on each spine.

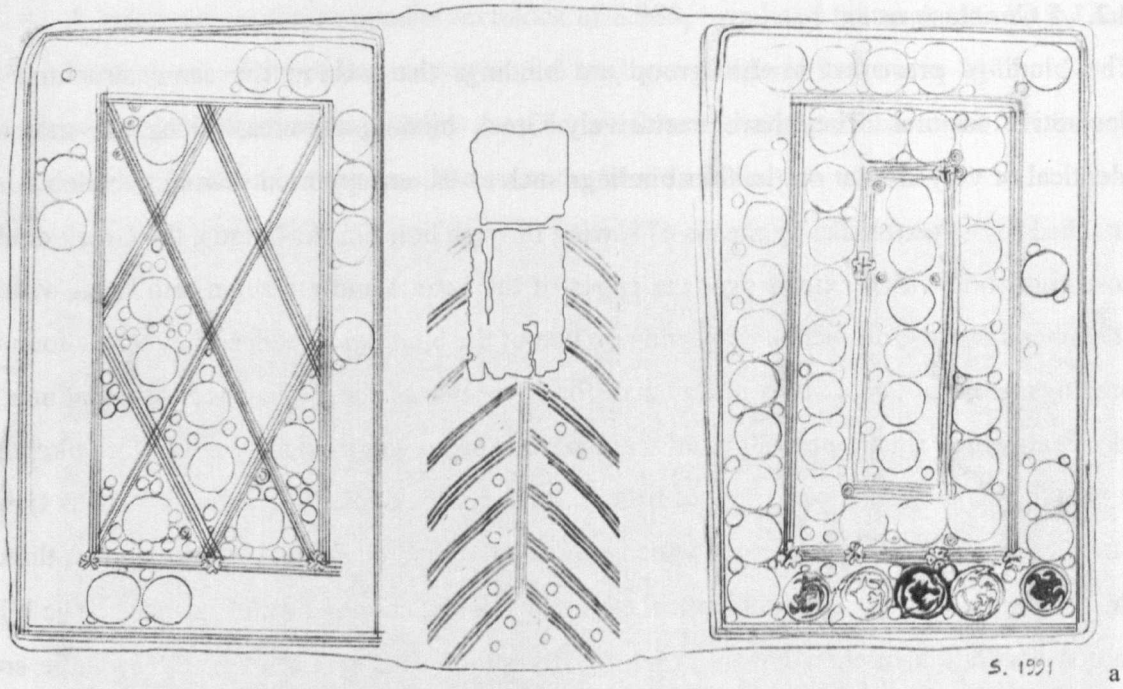
b) Finishing Tools

There are only three small hand-tools impressed in blind on the four bindings. They are impressed repeatedly and particularly densely, which creates the impression of very full and richly decorated covers. The predominant tool is Ha.li02, a round intaglio tool with a representation of a lion facing backwards. This tool is impressed repeatedly between the concentric frames and diagonal lines and within the triangles created from the straight-line impressions. Tools with similar motifs have been encountered before on Greek decorated bindings, with the most remarkable example being the tool H.li01 of this thesis. This tool was first recorded on the *"Antioch"* bindings (Boudalis, 2004, p.78-73) that were made between 1469 and 1543, most probably at the monastery of Saint Catherine or at a workshop near to it[8]. Other broadly similar motifs recorded in this thesis, such as Ha.li03 and Ha.li04 are also tools used on bindings made at Sinai (3.1.1).

[8] Boudalis gives a date around the end of the fifteenth century for the nine *"Antioch"* bindings that he describes and locates them with some reservations to either Antioch or a place in the Near East. The contribution of this

Hg.cr04 is used less frequently on the four volumes. It is a simple floral tool with eight petals. It is impressed only on **S.712** and **Add.11838**, mainly on the joints of the straight lines. Most characteristic however is its impressions on the foredge, head and tail edges of the boards on **S.712.** The only other tool recorded is a small concentric ring of particularly small diameter, which, like Ha.li02, is impressed numerous times all over the covers of the three bindings it is found on (**S.980, S.1991** and **Add.11838**). Moreover, like Hg.cr04, it is impressed on the board edges of the bindings and it is also impressed on the board edge below the endband (see S.980d, S.1991g, Add.11838g), which a very characteristic application of tooling, which has up to now been recorded on very few bindings, as far as I am aware, such as **S.A.170** and **S.A.390** of the *Group 31-"Antioch"* bindings (Boudalis 2004, p78-83) and **S.765** from *Group 37* (App.III 10) of an unknown date.

thesis with 51 more bindings that fall within his group have made it possible to extend the identified period of its activity to 1543 and also to recognise that the workshop had a local Sinaitic provenance.



a

b

Figure 105 - Drawings of the covers of a) S.1991 and b) British Library Add.11838

3.2.1.5 Conclusions

The bindings presented in this group are bindings that exhibit the same structural and decorative features. They have exclusively Greek binding features, which are moreover identical or very similar on the four bindings such as the unsupported sewing, wooden boards attached to the textblocks by means of sewing through holes in the boards, the Greek double-core endbands which extend over the edges of the boards and are sewn into them with the characteristic chevron secondary sewing on two of the bindings, that is so frequently found on bindings made in Crete. Two watermarks found on two of the endleaves in the bindings are identical, which is undoubtedly proof that the same paper was used and hence more likely that it was the same binder who produced them. The textblock-edge decoration with this type of interlace design is also an element which is typically found on Greek bindings and on three of the bindings of this group it is identical even down to the colours of the inks used. The blind-tooled decoration of their covers is an equally strong link between them. The three small hand-tools recorded from their covers are identical and are impressed repeatedly in a similar manner. All this is evidence that the four bindings are most certainly produced by the same bookbinding workshop.

Some inscriptions, colophon notes and watermarks in the manuscripts have helped to date this workshop between c.1475 and c.1482:

- The manuscript **S.712**, which is in its first binding, is signed by its scribe, monk Dionysios, and it is dated to March 19, 1482.
- The manuscript **S.980** is a composite textblock, with evidence of resewing for many parts of it. However, a signed and dated colophon on one of the sections mentions that it was completed at the monastery of Mount Sinai in 1475. This section seems not to have been resewn and is likely to have been sewn for the first time within this binding.
- Two watermarks from **S.980** and **S.1991** are identical; what is more, they are both dated to the second half of the fifteenth century, c.1460 and c.1481 respectively.

The location of this workshop has been more difficult to establish. Some additional inscriptions to the above may give us some clues and suggest two possibilities:

- The cryptographic note on **S.712** by the scribe monk Dionysios, mentions that he is from the Holy Community of the monastery of St Saba, referring most certainly to the ancient monastery in Jerusalem.

- A brief note on the composite textblock of **S.980,** by a hand that seems to be the same hand as one of the scribes mentions that he (the scribe) was in Syria in 1472.

These suggest that the manuscripts may derive from either the monastery of St Saba, or some other location in what was known at the time as Syria.

Figure 106 –The Greek Orthodox monastery of St Saba, near Jerusalem

Nevertheless, another possibility should be examined. The manuscript **S.980** includes a colophon note that confirms that the manuscript was completed at the monastery of Saint Catherine in Sinai. The scribe of this colophon may be the same monk Dionysios who came from St Saba as we are informed by the note on **S.712** or the name could be a coincidence. What is important is that the manuscript was completed at the monastery, which therefore raises the question of whether its binding may have been made there too.

Boudalis' examination of **S.1991** placed the binding within the group of the *"Antioch"* bindings. These bindings, as it is demonstrated in App.I 12, were most probably made at the monastery of Saint Catherine, during the same period that is examined here. There are structural similarities between the group presented here and the *"Antioch"* bindings, along

with the fact that they have the same provincial appearance and occasional roughness in execution.

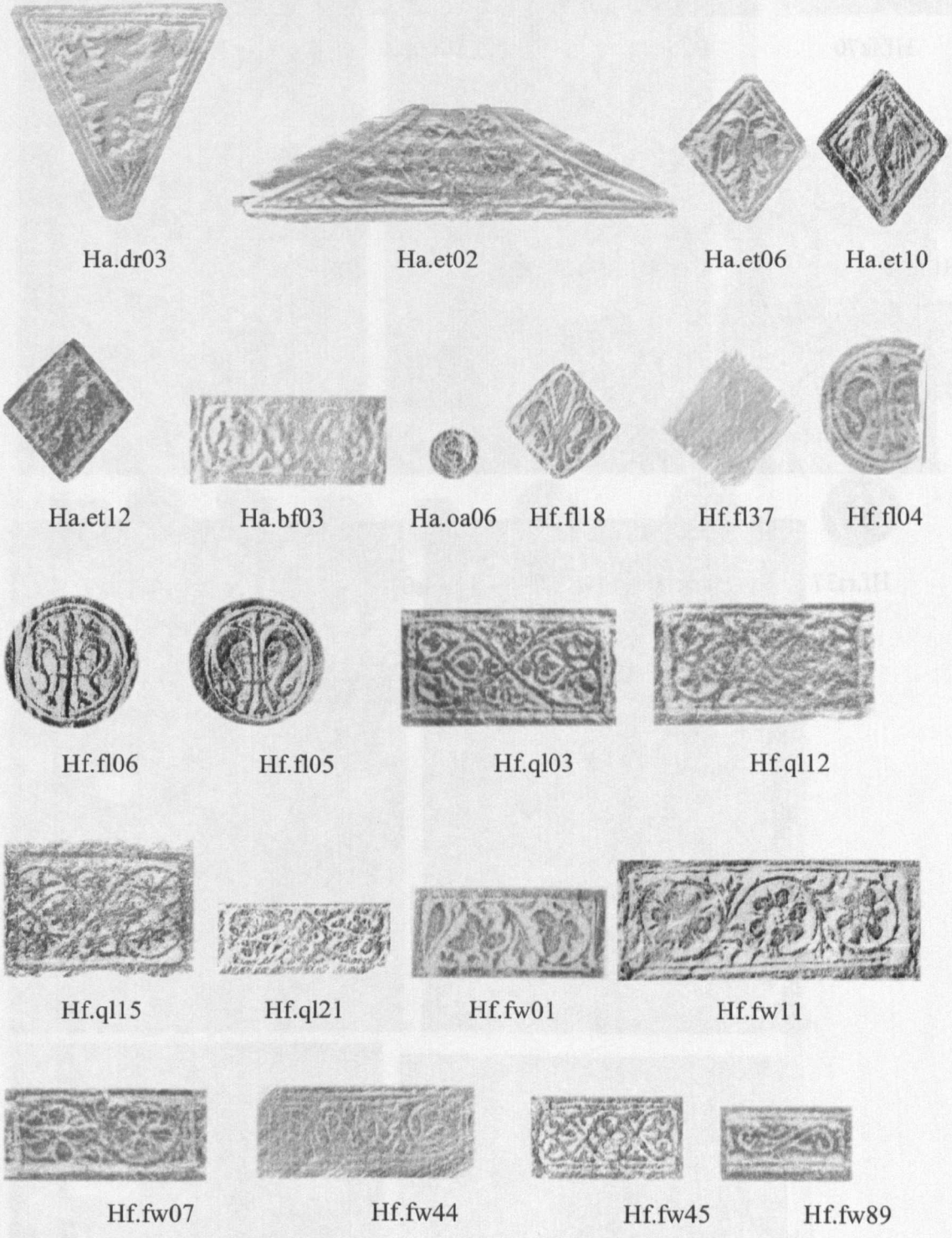
As current evidence stands both hypotheses are equally possible. Manuscripts that were written at the monastery of Saint Catherine were not always bound there, as we have seen examples of sixteenth-century manuscripts being written in Sinai and going to Crete to be bound (see 3.2.4). The scribe Dionysios, who wrote the manuscript in Sinai and had links with Syria, may have taken the manuscript with him to have it bound elsewhere. These however are merely hypotheses and unless more bindings that match this group are found which can provide us with further evidence the bookbinding workshop responsible for these bindings cannot be confirmed.

3.2.2 Group 29 – The "Apostolis" Bindings

	Tool / Manuscript	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
		Ha.dr03	Ha.at06	Ha.at10	Ha.at12	Ha.at02	Ha.bf03	Ha.oa06	Hf.fl06	Hf.fl05	Hf.fl04	Hf.fl18	Hf.fl37	Hf.ql03	Hf.ql12	Hf.ql15	Hf.ql21	Hf.fw01	Hf.fw11	Hf.fw07	Hf.fw45	Hf.fe70	Hf.fw44	Hf.fe77	Hf.fe78	Hf.fe73	Hf.fe74	Ho.it02	Hf.fe72	Ho.it03	Hf.fw89	Hf.rs33	Hf.rs35	Hf.fe05	Hf.rs37	Hf.rs38	Hf.rs188	Hm.lp03	~	~	~	~	~
1	S.20											x	x						x		x								x														
2	S.165		x				x							x																													
3	S.170																								x																	
4	S.261		x						x			x							x			x					x								x					x		
5	S.350	x							x					x				x	x									x				x							x		
6	S.363	?					x									x												x	x					x							
7	S.588	x				?	x							x				x						x							x					x	x				
8	S.594													x																x				?			x			x		
9	S.616				x										x									x						x										x		
10	S.621	?												?											x										?						x		
11	S.643	?				?														x						x														x		
12	S.752	?	x								?			x				x						x								?							?		
13	S.770		x								x			x				x										x						x							
14	S.773				x					x					x										x																	
15	S.839		x								x			x														x												x		
16	S.850	x	x								x			x										x																x		
17	S.872	x																x						x																		
18	S.874	?	?											x		?		?										x											?			
19	S.1145			x						x				x				x		x				x						x		x					?	x		x		x
20	S.1183	?				?												x		x				x									?						x		
21	S.1194	x				x								x				x										x	x					x							
22	S.1234	x				x								x				x						x								x			x				x		
23	S.1251													x				x						x						x	x	x								x		
24	S.1252	x	x					x			x							x						x																		
25	S.1255				x										x			x		x					x															x		
26	S.1341	x		x		x				x				x				x		x					x					x		x					x				
27	S.1353													x											?										x							
28	S.1349	x									x			x				x						x				x			x						x				
29	S.1463			?																																						
30	S.1506	x							x					x		x		x										x														
31	S.1552			x							x			x				x					x	x								x		x						x		
32	S.1584		x				x							x				x						?															x			
33	S.1613		x						x			x					x		x			x					x									x				x		
34	S.1666		x											x				x		x						x														x		
35	S.1947		x								x					x																										
36	S.1950	x	x											x																													
37	S.1992													x														x					x	x						x		
38	S.2101	x	x								x			x				x						x														x		x		
39	S.2103																	x								x				x												

Table 3.2. 2 - List of finishing tools with their correspondence to the *"Apostolis"* bindings. **(Rubbings not in scale)**

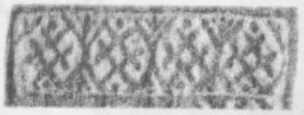
DECORATIVE TOOLS ON THE BINDINGS OF GROUP 29



Hf.fe70

Hf.fe72

Ho.it02

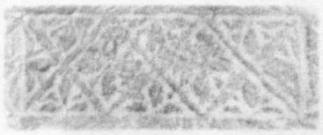


Ho.it03

Hf.fe73

Hf.fe74

Hf.fe77



Hf.fe78

Hf.fe05

Hf.rs35

Hf.rs33

Hf.rs37

Hf.rs38

Hf.rs188

Hm.is03

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~

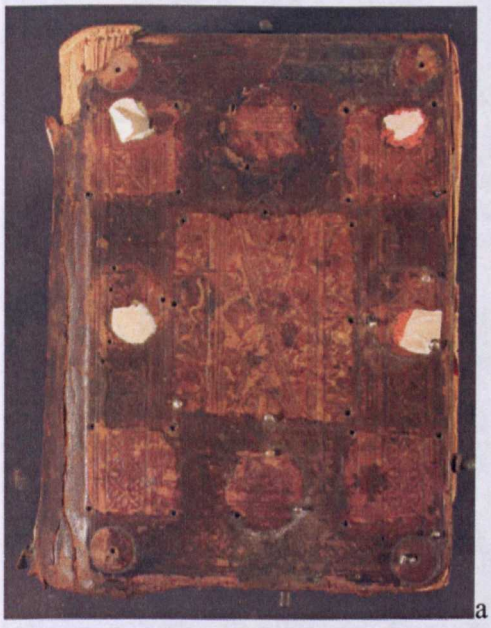
S.20


a


b


c

S.165


a


b


c


d

S.170

a

b

c

c

S.261

a

b

S.350


a


b

c


c

S.363

a

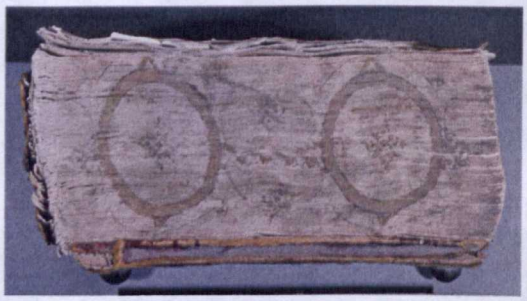

b

S.588


a

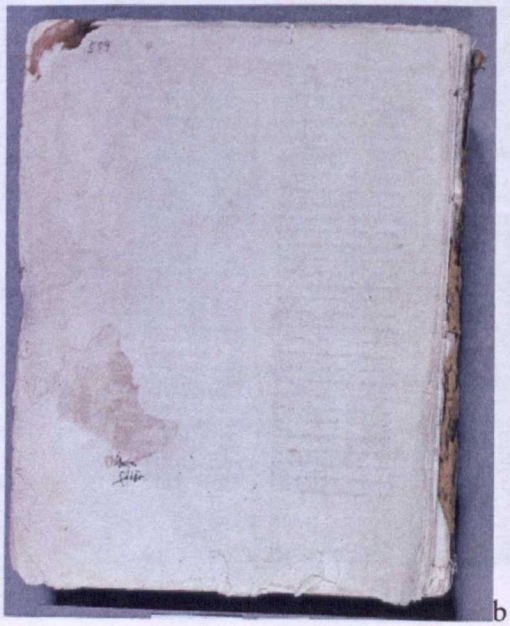

b

c


c

S.594


a


b

S.616


a


b

c


d


e

S.621

a

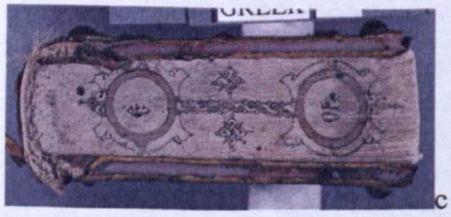

b

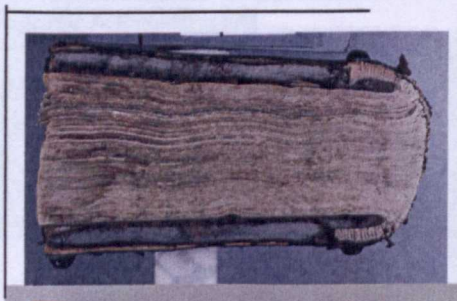
c

S.643


a


b


c


c

S.752

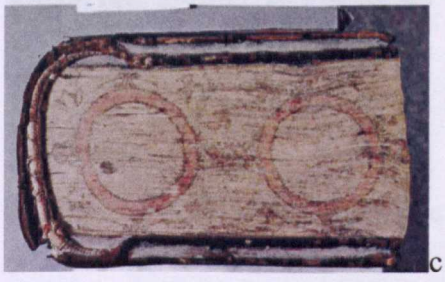

a


b

S.770

a

b



c

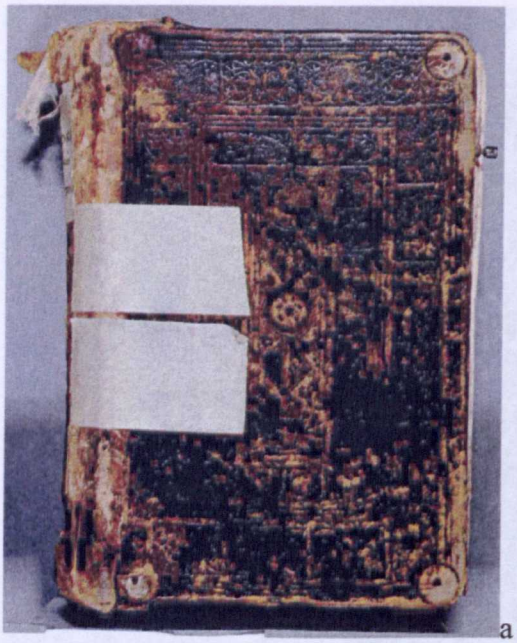
S.773

a

b

c

S.839

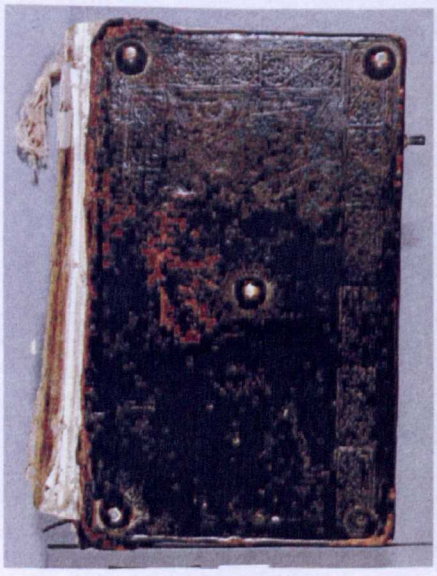


a

b

c

S.850



a

b

c

S.872

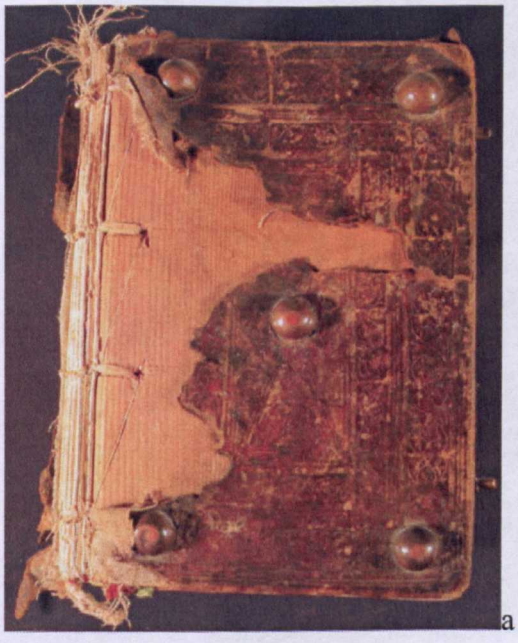
a

b

c

c

S.874



a

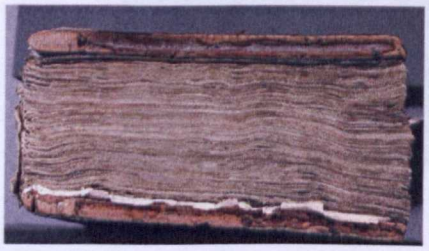
b

S.1145


a


b


c


c

S.1183


a

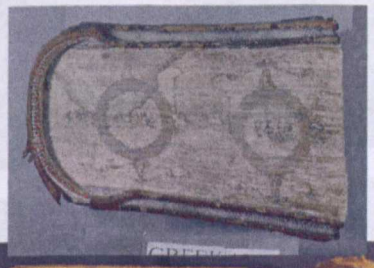

b

S.1194


a


b

c


c

S.1234


a


b

S.1251


a


b

c

c

S.1252

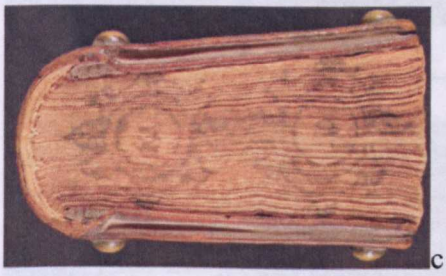

a

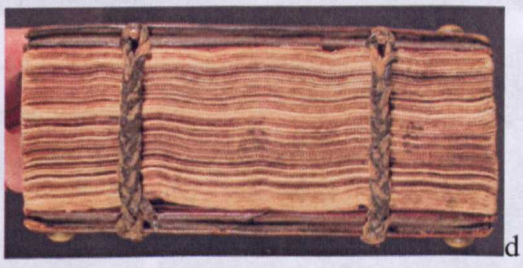

b

S.1255


a


b


c


d

S.1341


a


b


c


d

S.1349

a

b

c

c

S.1353

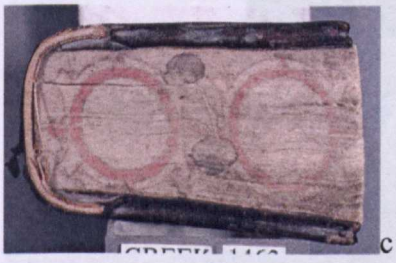
a

b

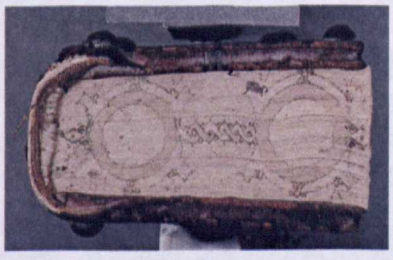
S.1463

a

b



c



c

S.1506

a

b

S.1552


a


b

S.1584


a


b


c

S.1613


a


b


c

S.1666


a


b


c

S.1947


a

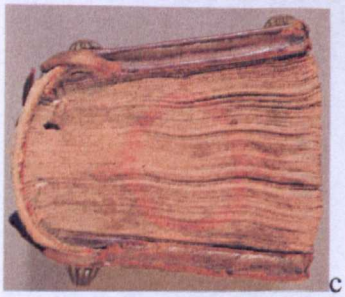

b


c

S.1950


c


a b


c

S.1992


a

b

S.2101


a

b


c


d

S.2103

a

b

c

3.2.2.1 Introduction

The bindings presented in this chapter form a group of 39 Greek manuscripts from the library of the monastery of Saint Catherine, which either acquired their first binding or were rebound in a bookbinding workshop in Crete. 23 of these bindings are the first bindings on the manuscripts they contain while 16 are rebindings on older manuscripts (**S.20, S.170, S.261, S.363, S.588, S.594, S.752, S.839, S.872, S.1183, S.1251, S.1252, S.1506, S.1613, S.1666, S.1950**). Their contents include a great variety of ecclesiastical texts such as the *Old and New Testament, Menologia, Sayings of Fathers, Commentaries, Liturgies* and *Music* manuscripts. This workshop is linked to Michael Apostolis (1422-1474 or1486) and his son Aristovoulos Apostolis (1465-1535). The erudite, teacher and scribe Michael Apostolis, a resident of Constantinople, found refuge on the island of Crete after the fall of Constantinople in 1453 and established there one of the most prolific scriptoria for Greek texts and binding workshops of the fifteenth and early sixteenth centuries to have been identified. Cardinal Bessarion[9] himself, commissioned M.Apostolis to seek out Greek manuscripts for his library. At least 115 manuscripts attributed to Michael or Aristovoulos Apostolis and related scribes who were possibly working for their scriptorium, which are known to have been copied for Bessarion and other patrons, survive today scattered among European libraries. Wittek (1953) was the first to observe the relationship that many copyists of Greek manuscripts had with Michael and Aristovoulos Apostolis, which supports the existence of an organized scriptorium. Wittek also indicated 9 bindings from the Bibliothèque Royal de Belgique that relate to the scriptorium of Apostolis which also showed similarities between their bindings[10]. It was for this reason that the bookbinding workshop was named after them.

Regemorter (1954), in her pioneering study of Greek binding structures, identified three bindings[11] that shared similarities. She indicated that they were also similar to **S.588** discussed in this chapter, but did not attempt to attribute them to a specific provenance.

---

[9] Bessarion (1439-72) was a Greek scholar, monk and metropolitan of Nicaea and a leading supporter of the reunion of the eastern and western Churches. After the fall of Constantinople in 1453 when he left permanently for Italy, he eventually turned to Catholicism and was subsequently appointed to high ecclesiastical positions, as well as being twice a candidate for the papacy. He was renowned for his outstanding scholarship, as well as for being an author, copyist and patron of Greek learned men who he commissioned to copy Greek manuscripts and translations of Greek authors into Latin. His extensive collection of Greek manuscripts was to form the core of the Biblioteca Marciana in Venice. (Kazhdan, p.285)

[10] These are manuscripts Bruxellensis, 1871, 3529, 11343, 11371, 11383-4, 18170, 11290, 11291, 18967

[11] Bruxellensis 11290, Bruxellensis 11291 and Milan Ambr.sup.24

Irigoin (1962) embarked further on the subject and was able to demonstrate that many of the manuscripts produced by the Apostolis workshop as well as existing ancient manuscripts, were bound or rebound on the premises of this scriptorium and attributed three bookbindings from Munich's Bayerische Staatsbibliothek[12], five from the Bibliothèque nationale de France[13] and one from the Royal Library of the Escorial[14] to the *"Apostolis"* workshop, because of their clear decorative similarities. Hoffmann, (1982) added to this list two more manuscript bindings from Perugia[15]. Grosdidier de Maton (1991) mentions briefly that research so far had identified 34 bindings, which incorporate a total of 25 tools, related to Michael and Aristovoulos Apostolis, but she did not give any shelfmarks, rubbings or photographs of bindings, so it is therefore impossible to know if she included in this number bindings that had already been mentioned in the other references. Tselikas (2003) described two *portolanos*[16] manuscripts, one of which is from the Parliament Library of Greece and is in an *"Apostolis"* binding. Boudalis (2004, pp.48-68) identified another 3 bindings from the St Catherine's Monastery library that are discussed in this chapter (**S,1194, S.1234** and **S.2101**) and also attributed **S.375** to it, which seems however to relate more to the *"Dandolo"* group of bindings that was discussed in Chapter 3.2.2 than to the *"Apostolis"* bindings.
Seven more bindings from the Vatican library[17], share 15 decorative motifs (Federici & Houlis, 1988) with those presented here, but it has not been possible to examine these in person due to the closure of the Vatican library in June 2007.
The bindings presented in this chapter form the largest group of bindings identified so far that relate to the *"Apostolis"* scriptorium to have survived in one collection and bring the total number of *"Apostolis'"* bindings to 67. The 39 bindings from the monastery of Saint Catherine are presented here with an emphasis on their common binding features, which not only allow them to be seen as the products of one bookbinding workshop, but also to establish dates for some of the bindings discussed. Evidence from their examination throws light on how this binding atelier worked, what was its clientele, what the scale of this enterprise might

[12] Monacenses gr. 348, 356 and 377
[13] Parisinus gr. 828, 1107, 2707, 2807 and suppl.gr.541
[14] Scorialensis X-II-15
[15] Perusini 51 and 714
[16] *Portolanos* is called the text that provides directions to sailors that will facilitate their journey from port to port. *Portolanos* is also the map that depicts coasts and ports. Less frequently it is a marine map with instructions for sailors. (Translated from the original Greek text in Tselikas 2003)
[17] Vat,gr.174, Vat.gr.1333, Vat.gr.1585, Vat.gr.2362, Barb.gr.249, Barb.gr.578 and Barb.gr.2491.

have been, and which were the different stages of its activity. Finally, the circumstances under which these manuscripts got to Sinai are discussed.

3.2.2.2 Paleographical Notes

A combination of dated and/or signed colophons and other notes found in the manuscripts contributes to identifying their provenance, the different scribes that worked in conjunction with the Apostolis scriptorium and the accurate date of certain bindings.

In **S.588** we read:

> *f.270 "The present month December was completed by me most lowly priest Peter from Pavia, servant of the holy and glorious great martyr Catherine, at the expense of our most holy father and oikonomos of the same glorious great martyr, kyr Athanasios in the year 6972A.D., and in the small year (i.e. the year of the Incarnation) 1465 on March 18th. It was written on the island of Crete."*[18]

Dated ownership notes in **S.643** and **S.839** help us attribute a terminus post quem for these two manuscripts:

> **S.643**, f.339: *"This book belongs to kyr Klimis monk of the Holy Mount of Sinai. In the year 7012 (=1514 A.D.)"*[19]
>
> **S.839**, f.326: *"The present Theotokarion belongs to the Holy Mount Sinai and the Holy Monastery; and whoever removes it from the Holy Monastery let him be cursed by the 318 Fathers and be judged alongside Juda Iscariot. In the year 7071 (=1563A.D.)in the month July 10th."*[20]

In **S.874** a note on the left endleaves reads:

> *"The present book belongs to me Metropolite of Gaza Nectarios the Cretan, and I gave it to monk Gerasimos from Crete".* [21]

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[18] *«Ετελειώθη ο παρών μην δεκέβριος διά χειρός εμού ελαχίστ(ου) ιερέως πέτρου παβία οικέτου της α(γίας) κ' [?] ενδόξου μ(ε)γ(α)λ(ο)μ(ά)ρτ(υρος) αικατερίνη. Διά εξόδ[ων] του οσιωτάτου πατρός ημών κυρ οικονόμου της αυτής ενδόξου μ(ε)γ(α)λ(ο)μ(ά)ρτ(υρος) κύρου αθανασίου εις έτος 6972 και εις μικρ[όν] έτος αυξε' (1465) εν μη(νί) μαρτίου ιή' εν νη(σω) κρήτ(ης) εγράφη»*

[19] *«Τούτον το βιβλίον εστί κυρ Κλήμη ιερομονάχου και του [μεν?] οντου αγίου όρους σινά. Έτη 7012 (1514)».*

[20] *«Το παρόν Θεοτοκάριν εστί του αγίου όρους σινά της αυτής αγίας βασιλικής μονής και είτις το ηστερείσι εκ της αυτή αγίας μονής να έχει τας άρας των 318 θεοσφώρον πατέρων και να κριθεί με τον ιούδα τον ισκαριώτη. Έτους 7071 (1563) μηνί Ιουνίου κ'».*

[21] *«Το παρόν βιβλίο κτήμα επί εμού Μητροπολίτου Γάζης Νεκταρίου του Κρητός και εχάρισα αυτό Γερασίμου ιερομονάχου του Κρητός.»*

Metropolite Nectarios of Gaza is likely to be the same person as Nectarios of Jerusalem (1605-1680) who was a monk and abbot at the monastery of Saint Catherine in Sinai before being elected Patriarch of Jerusalem in 1661. Not long after his appointment though, in 1669, he renounced his claim to be a Patriarch; he remained, however, in Jerusalem apart from short periods where he returned to Sinai (Schaff-Herzog, 1914). In the above note the

Another Cretan owner is identified in **S.770:**

> *"The present book belongs to me, monk Anthimos the Cretan, and I dedicate it to the Holy Monastery of Sinai".*[22]

S.1194 bears a note that confirms the relation of this group of manuscripts with the scriptorium of *"Apostolis"*, since it was written by Aristovoulos Apostolis himself.

> f.96r: *"Aristovoulos Apostolis hierodeacon with the grace of God wrote this book also of Apollonius in Crete, not however without pay, for like my father I, too, am at the mercy of the most pernicious beast of poverty, 1491 A.D. on the 4th of December"*[23]

The binding is contemporary with this manuscript and we may safely assume that it was made not long after 1491.

Eight manuscripts of this group are linked more closely (**S.1234, S.1251, S.1252, S.1255, S.1463, S.1506, S.1552, S.1584**). Besides the several structural and decorative similarities of their bindings, which are described in detail in the following sections of this chapter, palaeographic investigations show that they are all music manuscripts written by the hand of Ioannis Plousiadinos (1429-1500), high priest in the city of Handakas (Crete), and a renowned copyist and author of several religious poems and texts.[24] A dated colophon in **S.1234** informs us:

> f. 450v. *"The present book was finished by the hand of me Ioannis priest of Plousiadinos and protopapas of Candia of Crete [...] in the year 1469 AD 3rd indiction in Venice. Those consulting this book pray to the Lord for me and ..."*(Boudalis 2004, p.50)

Ioannis Plousiadinos, (also known as Bishop Iosiph and as Koukoumas), was high priest of Candia in Crete, as the note also testifies. He also lived and worked in Venice, Italy for a

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title *Metropolite* is used, which is significant for there is no evidence so far to confirm that the ex-Patriarch did indeed become a metropolitan in Gaza.

[22] *«Το παρόν βιβλίον υπάρχει εμού Ανθήμου ιερομονάχου του κρητός και αφιερόνο το εν αγία μονήν του αγίου και θεοβαδίστου όρους σινά...»*

[23] *«Αριστόβουλος Αποστόλης ιεροδιάκονος θεία χάριτι και ταύτην την του Απολλωνίου βίβλον εν Κρήτη εξέγραψα ουκ άνευ μέντοι μισθού . Υπό γαρ του εξολεστάτου θηρός της πενίας και αυτός ώσπερ ο πατήρ στραγγεύομαι αυθα' (1491) μηνός δεκμβρίου δ'».*

[24] Personal communication with musicologist Dimitris Balageorgos who identified the hand of Plousiadinos in these manuscripts (also Balageorgos 2008, 'οι αποκείμενοι...'), as well as in six more manuscripts (**S.1253, S.1293, S.1312, S.1462, S.1547, S.1566**) from the Saint Catherine's library, which bear bindings that do not fall within this group.

large part of his life as one of the copyists commissioned by Cardinal Bessarion, where he also wrote this manuscript. He was later rewarded for his services to Bessarion by being appointed Bishop of Methoni in 1492 (Tsirpanlis 1964, p.12). This particular manuscript was completed in Venice, probably during his residency there.

S.1584 is a manuscript worthy of some special attention. A signed colophon informs us that it contains a manuscript by Plousiadinos; nevertheless the scribe does not sign as *Ioannis* Plousiadinos but as *Georgios Plousiadinos* for whom there is no information. An ownership note is also found on f.1, signed by Gerasimos Yalinas, a Cretan scribe of musical manuscripts and monk at the dependency of the monastery in Crete, who is known to have completed[25] (c.1640 and 1658) and owned[26] several music manuscripts that survive at the library of St Catherine's. Notes signed by him in **S.1451** and **S.1452** testify that he completed these manuscripts in the dependency of the monastery in Crete, thus confirming his link with the island.

Additionally, a note is found on the right endleaves of **S.1584**. An extra leaf has been adhered to the last of the endleaves and only a small part between the two is detached enough to reveal a dedication signed by the Patriarch of Alexandria Ioakim I (fig.107):

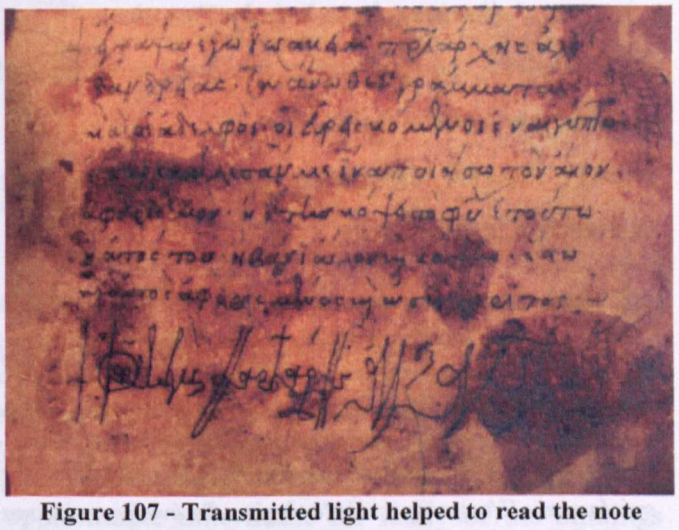

Figure 107 - Transmitted light helped to read the note signed by Patriarch of Alexandria Ioakim in S.1584

Right endleaves: *"The present sticherarion is dedicated to the Holy Mount Sinai to be chanted in the church, when the brothers will sing together and outside and in the open; not to Raithos or Egypt or to another place. Or (if anyone) steals or removes the present sticherarion, let him be excommunicated by the Father, the Son and the Holy Spirit, in the present and the future. And if anyone treasures it and takes care of it safely within the monastery, let him be blessed and forgiven in the name of The Holy Spirit. This book belonged to the deceased Mr Gerasimos the musician, known as Rasaris. I, Ioakim Patriarch of*

[25] **S.1416, S.1417, S.1438, S.1440, S.1447, S.1451, S.1452, S.1482, S.1490, S.1540** and **S.1566.** (Spanos, 1998 and App.II 8 - *Group 24* of this thesis)

[26] Further paleographic investigations are required to have a complete list of the St Catherine's manuscripts owned by Gerasimos Yalinas; however besides **S.1584** they also include **S.1506** of this group.

Alexandria wrote these words and the brothers who were in Egypt called me to make this ex-communication: whoever cuts this leaf or makes someone else cut it let him be

ex-communicated and un-forgiven. Ioakim, Patriarch of Alexandria."[27]

Ioakim I was Patriarch of Alexandria between 1486-1567. From this note we may assume that the manuscript came to the monastery during his long incumbency and after the decease of a certain *Gerasimos Rasaris*, who unfortunately is not known.

Two more manuscripts appear, **(S.350, S.1349)** based on their palaeographic similarities, to be the products of the same scribe, though neither is signed nor dated.

In **S.2101** we read another signed and dated colophon:

> f.569: *"The present book was finished during the month of April 6986 (1478A.D.). By the hand of Matthaios worthless monk, known to the world as the Trapezountios. God's blessing"*[28]

S.1252 has an added note on its left endleaves, which helps us determine a terminus post quem for the manuscript and its binding:

> *"September 15, 1547 the blessed Paisios was deceased"*[29]

S.261 ends with a signed note:

> *"written from Italy by Timotheos"*[30]

Nevertheless, the manuscript has been rebound and its binding most certainly relates neither to Timotheos nor to Italy.

Finally, **S.2103** may safely be said to have left Crete by 1587 when a reader of this manuscript testifies in his note:

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[27] *«Αφιερώθει το παρώ(ν) στιχηράριον. εις το άγιον όρος το σινέον. Ίνα ψάλετε εντός του κυριακού. Όπου συνάσονται οι αδελφοί και εκτός και έξω ουχί εις ραϊθού ή εις αίγυπτω ή εις άλον (τ)όπον ή κλέψει και ηστερίσοι το παρώ(ν) στιχηράριον να ίνε αφορισμένος παρά π(ατ)ρ(ό)ς υιού και αγίου πνεύματος. εν τω νυν και εν το μέλοντι. Και ίτης το φιλάσι κ' προσέχι είς φήλαξην εντός του μοναστιρίου να ίνε ευλογημένος και σιγχωρι[μένος] εν αγίω πν[εύματι]. Η βύβλος ταύτη του μακαρίτη κύρω Γερασίμω το μουσηκώ το κατά κόσμω Ρασάρις .Έγραψα εγώ Ιωακείμ Π(ατ)ριάρχης Αλεξανδρείας. Τα άνωθεν γράμματα και οι αδελφοί οι ευρεισκόμενοι εν αιγύπτω επ...εκάλεσαν με ίνα ποιήσω τον άνον αφορισμόν. Ήν της κόψει το φύλλο ετούτω ή άτός του ή βάνι άλον και κόψει(;) έστω και αυτός αφορισμένος καί ασυγχώριτος.Ιωακείμ Πατριάρχης Αλεξανδρείας»*

[28] *« Ετελειώθη το παρόν βιβλίον κατά μήνα απρίλιον του ϛsab πς' (6986AM = 1478AD). Χειρί Ματθαίου ευτελούς ιερομονάχου του κατά κόσμον Τραπεζούντιο. Τώ δόντι, τέρμα της βίβλου. Θεού χάρις»*

[29] *« Σεπτέμβρ. 15, 1547 εκοιμήθει ο μακαριστός Παΐσιος ...»*

[30] *«εγρ[άφη] απ[ό] ιταλ[ία] διά Τιμοθέου»*

"1587 in the month January, 31, I Jacob monk from the island of Patmos, happened to be at the dependency of the Virgin- martyr Saint Catherine and went to worship the Holy Grave and we made eight days to (go to) Egypt where we couldn't reach by land [...?] where [...?] bad people"[31]

What is unclear however is whether this manuscript was read at the monastery in Sinai or at one of its dependencies in Egypt.

3.2.2.3 Material and Structural Similarities

a) Endleaves

There are 71 endleaf units surviving in this group of bindings. They can be divided into 3 main types (fig.108), according to the format of their attachment, the number of endleaves in each unit and their arrangement:

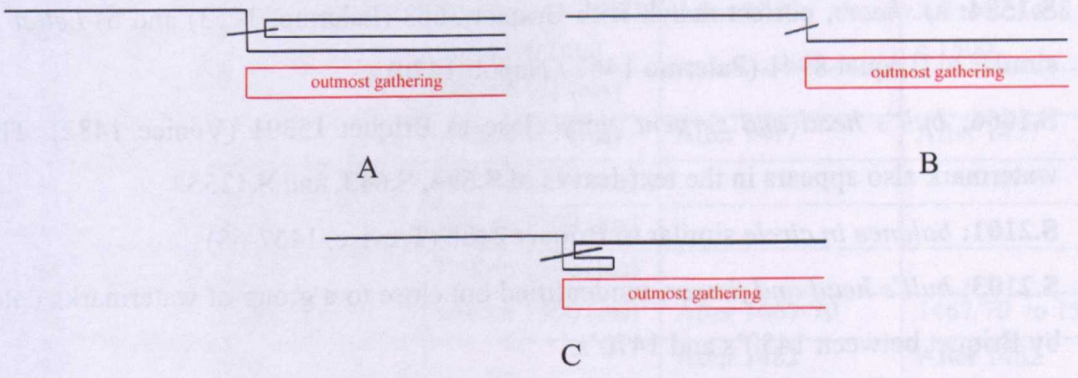

Figure 108 - Endleaves types in *Apostolis* bindings

42 are of type A, 9 of type B, 7 of type C and 12 have other random formats. Only five bindings have different formats of endleaves at each end of the textblock.

31 units are made of Western paper, two of Eastern polished paper and two of parchment manuscript waste. A number of watermarks have been identified in the western papers, which are worth noting since they provide an approximate time-frame for many of the bindings discussed.

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[31] *«αφπζ (1587) μηνί ο ιανουάριος λα' (31) έλαχα εγώ Ιάκωβος ιερομόναχος εκ τη νύσου Πάτμου εις το μετόχιον τις αγίας παρθένομάρτιρος αικατερίνη και εδιάβε να χάρην προσκυνήσεος του αγίου ζωυφόρου τάφου και εκάμαμε υμέρες η' κανές εις τιν Έγειπτον όπου δεν υμπορούμεν απάμεν από τη στεράν '[?] όπυ τη [αριβαστησαν] κακοί ανθρώποι.»*

- **S.616:** a) *clerical hat* similar to Piccard 32268 (Ravenna 1500) and b) a *balance in circle* in the text leaves similar to Briquet 2524 (Venice, 1504).
- **S.643:** *anchor in circle,* similar to a group of Piccard watermarks (e.g.118925, 118929, 118932), of Italian provenance that date between 1480-89.
- **S.839:** *Balance in circle,* similar to Briquet 2524 (Venice, 1504) but not identical to the watermark b) in **S.616.**
- **S.874:** identical watermarks with **S.0616,** both for their endleaves as well as for their textleaves.
- **S.1194:** *balance in circle,* a perfect match with Piccard 117206 (o.O, 1491)
- **S.1255:** *balance in circle* similar to Piccard 11655 (o.O., 1488).
- **S.1349:** *shears,* same in endleaves as in text-leaves, which is very close to Piccard 122559 (Genova, 1477)
- **S.1584:** a) *shears,* perfect match with Briquet 3663 (Palermo, 1453) and b) *Letter R*: similar to Briquet 8941 (Palermo 1467 / Napoli 1470).
- **S.1666:** *bull's head and serpent,* very close to Briquet 15391 (Venice 1482). This watermark also appears in the text-leaves of **S.594, S.643,** and **S.1255.**
- **S.2101:** *balance in circle* similar to Briquet 2488 (Trevise, 1467-68)
- **S.2103:** *bull's head and flower,* unidentified but close to a group of watermarks dated by Briquet between 1450's and 1470's.

Below is a summary of the evidence that has been derived from the inscriptions discussed in the previous section and the endleaf and text-leaves paper dates, with suggestions for the date of binding of certain manuscripts:

Manuscript	First binding	Ms or ownership date	Endleaves date	Possible binding date
S.588	no	1465 (ms)		After 1465
S.594	yes	After 1504 (ms)		After c.1504
S.616	yes	After 1504 (ms)	After c.1500	After c.1504
S.643	yes	after 1482 (ms), 1514 (owned)	1480-89	c.1482 - 1514
S.839	no	1563 (owned)	After c.1504	c.1504 – 1563
S.874	yes	After 1504 (ms)	After c.1500	After c.1504
S.1194	yes	1491 (ms)	1491	circa 1491
S.1234	yes	1469 (ms)		After 1469
S.1251	no	Before 1500 (ms)		
S.1252	no	Before 1500 (ms)		
S.1255	yes	Between 1482 and 1500 (ms)	After 1488	After 1488 - c.1500
S.1341	yes	After 1401 (ms)		
S.1349	yes	After 1477 (ms)	After 1477	After 1477
S.1463	yes	Before 1500 (ms)		
S.1506	yes	Before 1500 (ms)		
S.1552	yes	Before 1500 (ms)		
S.1584	yes	Before 1500 (ms)	After 1467-70	1467/70 to 1500
S.1666	no		After 1482	After 1482
S.2101	yes	1478 (ms)	After 1467-68	c.1478
S.2103	yes		1450's to 1470's	After 1450's

Table 3.2.3 Possible binding dates of manuscripts from the "*Apostolis*" atelier

The evidence extracted from the dates of the endleaves and the palaeographic notes may give us a sense of the time span of bookbinding production from this workshop. Judging by these dates there is a discernible continuation of bookbinding activity for approximately 40 years, if not for longer. However possible it may have been for a single man to have produced these bindings alone, it is logical to also consider the possibility there was a change-over of the workforce in the workshop. In order to understand if and when this might have happened, patterns were especially looked for in the structural details and techniques used on these bindings, which could betray different binders at work. Therefore, the examination of the structural features that follow is organized in a method which not only confirms a number of

similarities in the execution of these bindings that proves that they were made in the same workshop, but also identifies the subgroups that emerge, which may identify the individual binders within the workshop.

b) Sewing

With the exception of **S.363,** which has had its textblock re-sewn on six twisted cord supports, the 38 remaining bindings have unsupported link stitch textblock sewing. Only six bindings were identified to have double-sequence sewing and one was sewn in a single sequence, while the rest were not accessible for examination. Due to the large number of re-sewn volumes (16), most of which have had the original sewing stations re-used, it was considered irrelevant to compare the number and distances of the sewing station as an indication of a binder's individual sewing pattern. The threads used for the sewing vary in five different types, with the majority (23 bindings) being sewn with an S-ply thread with a twist at approximately 45°. However, it not safe to assume that they are identical threads without microscopic examination of the fibres.

c) Boards

Of the 76 surviving boards, 74 have board edge grooves in the common Greek style:

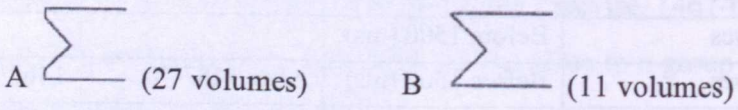


Figure 109 - The two types of board edge grooves

One volume has internal bevels in its single surviving board **(S.1992).**

The boards of **S.363** are worth some particular attention. Wear on the leather cover has exposed the board edges (fig.110) to reveal that both boards are hardwood that was cut on the quarter (fig.111).

Figure 110 - Quarter cut board from S.0363

Planks that are cut on the quarter are more stable against shrinkage during the drying of timber and against warping with changes in moisture than those cut in parallel across the diameter of the timber and are therefore the best part from one piece of timber. This may indicate that the binder of this book was probably experienced enough to know which planks would be more appropriate for book boards and that he chose his materials carefully.

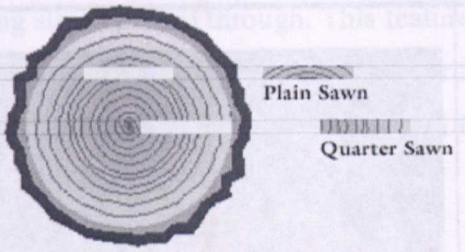


Figure 111 - Quarter cut planks which are identified by the parallel growth rings at the edges of the boards

The method of attachment of the boards to their textblocks is only visible and identifiable in a small number of bindings; it did not, therefore, prove useful for comparison. In those instances, there are three different types of attachment showing a variety of techniques.

d) Endbands

The endbands of the 37 bindings are grouped according to three distinct types. Within each group the technique and materials used are identical, which may suggest either that the same binder executed these or that different binders worked closely together and copied each other. The endbands types are:

A. 18 volumes. Greek double core endband sewn around cords and sewn into the boards in the Greek style, with a chevron secondary endband woven with green, red and white silk threads on white warps. The white band is woven as an intermediate band between the red and green chevrons. This type of endband has been frequently described as Cretan, based on the style of the secondary chevrons and the colours of the threads that are used (2.2.1 – Group 28, Irigoin, 1962).

B. Two volumes. Similar to type A) with the only differences being on the secondary endband. White and red alternating chevrons are woven instead of the red, green and white, while there is also no horizontal white chevron band as in type A).

C. 11 volumes. Greek double core endband sewn around cords and sewn into the boards in the Greek style, without a secondary endband.

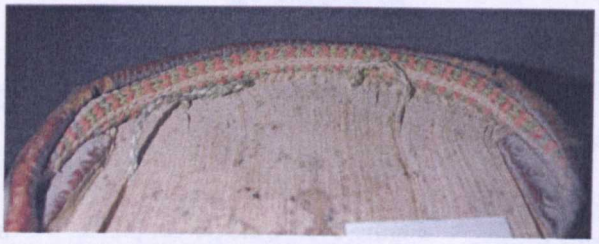
A		S.261 S.350 S.588 S.770 S.773 S.874 S.1194 S.1234 S.1251 S.1349 S.1353 S.1463 S.1506 S.1552 S.1584 S.1947 S.1950 S.1992 S.2101
B		S.1252 S.1613
C		S.20 S.616 S.621 S.643 S.839 S.850 S.1145 S.1255 S.1341 S.1666 S.2103

Table 3.2.4 The three types of endbands of the "*Apostolis*" bindings

The endbands on **S.1992** are in most aspects identical to the rest of type A endbands, apart from the fact that they are not sewn to the boards in the Greek style, but they are laced into the boards. This is in addition to several other features with Western influences that this binding appears to incorporate in its structure, such as the flat spine, the internal bevels of the boards, the catchplates which are of clear Italian origin, the red coloured textblock edges and the layout of the decoration (pattern A7). By combining these features with those of Greek bindings, such as the unsupported sewing structure on sewing stations shaped with V-cuts, the chevron type secondary endband and the bosses, this binding constitutes a hybrid structure that was completed either by different binders who worked closely together, but had experience of different binding traditions, or by a binder who was trained in one tradition but experimented in a new style.

e) Covering

The covers of all 39 bindings are either tanned goat (33) or a sheep-like (6) leather, varying in colour between mid- and red-brown. An unusual characteristic of these covers is the square

cutting of the turn-ins and the areas where the fastening straps passed through. This feature was been observed before in the majority of the Group 1 bindings (3.2.1.3) and was recorded on 17 bindings from this group too (**S.350, S.363, S.588, S.770, S.773, S.839 S.850, S.1183, S.1194, S.1251, S.1255, S.1341, S.1349, S.1552, S.1584, S.1947, S.1950**). No distinct varieties were observed within the style and shape of the cuts.

f) Furniture and Fastenings

Bosses

The majority of the bindings have had metal bosses made of a copper alloy nailed to their boards. Many bosses have been lost, leaving only impressions on the leather; however those that have survived may be divided into the following four main types:

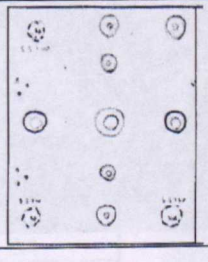
A	S.261*	S.594	S.643	S.773	
S.1145	S.1194	S.1251**	S.1255	S.1349	
S.1506	S.1552	S.1666	S.1947	S.1950	
S.1992	S.2101	S.2103			
B				**C**	
S.616				S.261*	
S.872				S.1950	
S.1234				S.1992	
S.1251*					
D					
S.1252					
S.1613					

Table 3.2.5 The four categories of metal bosses on *Group 29* bindings

S.261 and **S.1251** have been two key-bindings that have helped to relate the bindings with bosses of types 1, 2 and 3, since together they incorporate the three types of boss presented, leading to the conclusion that either the bosses were added later by the same person or that a variety of bosses was generally available to the binders of these manuscripts, which they chose almost at random.

g) Fastenings

Only three complete fastenings survive, two on **S.1255** and one on **S.2103**. However, the large majority of bindings (36) have evidence or remnants of a fastening system that most probably conforms to the three that have survived, which are of a common Greek type with interlaced straps attaching through a stirrup ring **(S.2103)** or a loop **(S.1255)** to an edge pin. **S.165 (**Boudalis, 2004, p.64) is also of the same type but has distinct white and black leather interlaced straps. Nevertheless, it may be possible that those remaining fastenings are not original to their bindings, but have been added during later repairs. **S.1992** presents a characteristic difference from the other 36 bindings, in having four western style catch-plates that survive on its single remaining board, one each at head and tail and two at the foredge.

h) Textblock edge-decoration

All but one binding **(S.1992)** have textblocks that have been cut flush with their boards according to the Greek bookbinding fashion, while 21 textblocks have been decorated on their foredge, head and tail edges with rings and rope-like designs, as was seen on bindings of Group 28 (3.1). These textblocks can be divided into two groups (Table 3.2.6), based on the inks used and on stylistic similarities:

A. The decoration of the textblock edges on these bindings is drawn with a light brown ink. Ornamental rings and rope designs are the main features. Additional interlace patterns are occasionally drawn around these designs.

S.165	S.350	S.588
S.594	S.616	S.643
S.773	S.1251	S.1255
S.1349	S.1506	S.1552
S.1584	S.2101	

B. Red ink is used instead, producing slightly plainer outlines of the same rings and rope design.

S.363	S.770
S.839	S.1194
S.1463	S.1947
S.1950	

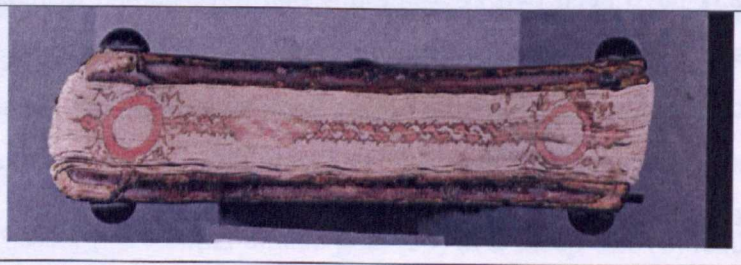


Table 3.2.6 Two types of ink-drawn board edge decoration

3.2.2.4 Decoration

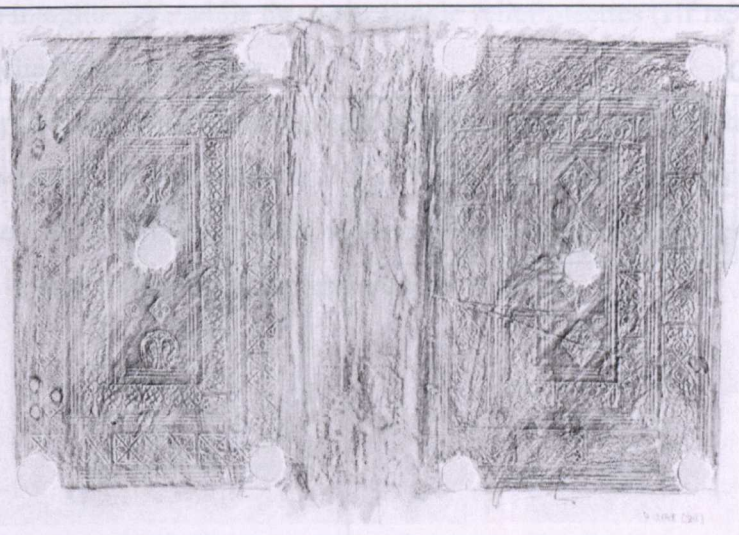
The common decorative tools and layout patterns that were identified on the covers of the 39 bindings provided the initial evidence through which these bindings were grouped together.

a) Decorative layout of the covers

There are 11 different layout patterns on the 37 bindings of this group, which appear in a number of combinations between the two boards of each binding. 23 bindings have the same pattern on both boards, particularly patterns A3 and B4. It was possible to identify five groups within the 37 bindings, which share common layout characteristics, as presented below:

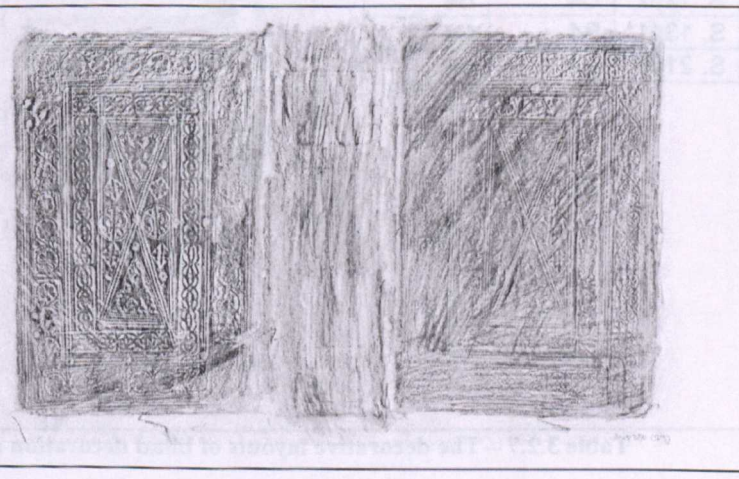
A.

MSS	Left	Right
S.20	A3	A3
S.170	A3	A3
S.588	A4	A4
S.594	A3	-
S.616	A2	A2
S.773	A3	A3
S.839	A3	A3
S.1145	A3	A3
S.1251	A3	A3
S.1255	A3	A3
S.1552	A3	A3
S.1584	A3	A3
S.1666	A3	A3
S.1947	A2	A2
S.2103	A4	A4



B.

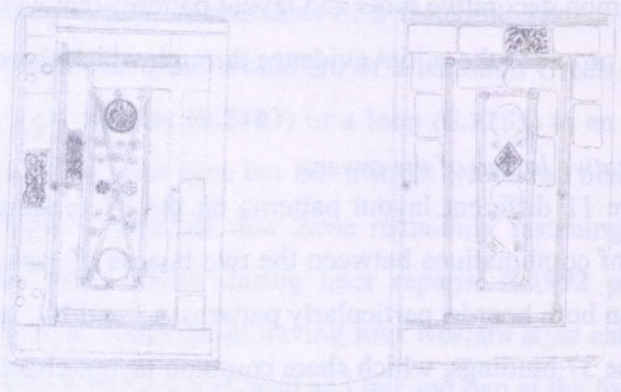
MSS	Left	Right
S.165	B4	B4
S.350	B4	B4
S.363	B4	B4
S.643	B4	B4
S.874	B4	B4
S.1183	B4	B4
S.1194	B4	B4
S.1349	B4	B4
S.1463	B4	B4
S.1506	B4	B4
S.1950	B3	B3



C.

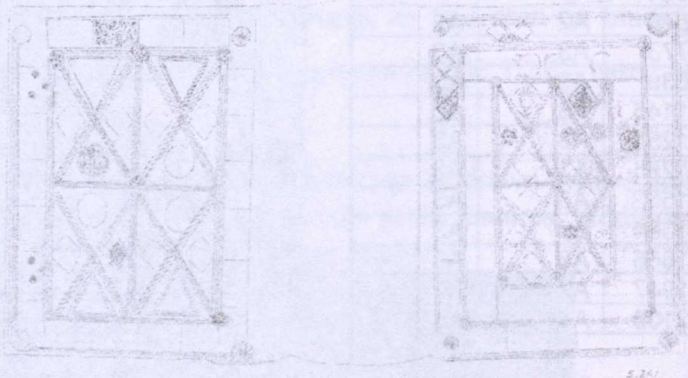
MSS	Left	Right
S.465	A2	B3
S.621	A3	B3
S.770	B4	A3
S.872	A3	B4
S.1353	A3	B4
S.1234	A3	B4

A combination of ***A*** and ***B***.



D.

MSS	Left	Right
S. 261	C15	C16
S. 752	C4	C4
S. 850	C3	C18
S. 1613	C16	C16



E.

MSS	Left	Right
S. 1252	C4	B4
S. 1341	B4	C4
S. 2101	C4	B4

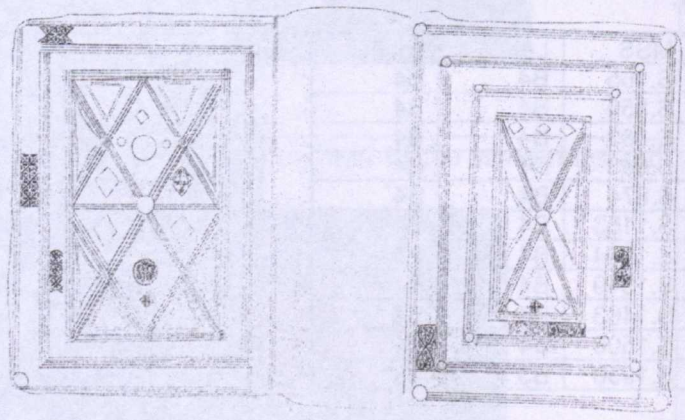


Table 3.2.7 – The decorative layouts of blind decoration on the *"Apostolis"* bindings

Only four bindings have been decorated over their spine and these are according to pattern a1 **(S.1255, S.1341)** and pattern a3 **(S.643, S.1251)**.

b) Finishing Tools

There are 42 individual finishing tools identified in this group, all of which, but for one creaser, are small hand tools. They were all applied in blind. There are only 8 tools which appear in unique instances, while the rest appear on between two and 21 bindings (Hf.ql03), with an average of each tool appearing on five bindings. The number of tools appearing in one single binding varies between three and 12, while the average throughout the 39 bindings is seven tools on each binding, which has provided a substantial number of tools to compare from each binding in order to verify its relation to the rest of the bindings in this group. The majority of the tools recorded are intaglio (35), while three are simple relief rosettes (Hf.rs37, Hf.rs38, Hf.rs188) and three are relief concentric rings.

Scanned rubbings of the tool impressions were superimposed and compared to one another according to the methodology developed for this research (1.1). The similarity between many motifs, as can be seen from the list of finishing tools in this group, meant that careful examination and comparison was crucial to identify if the impressions matched.

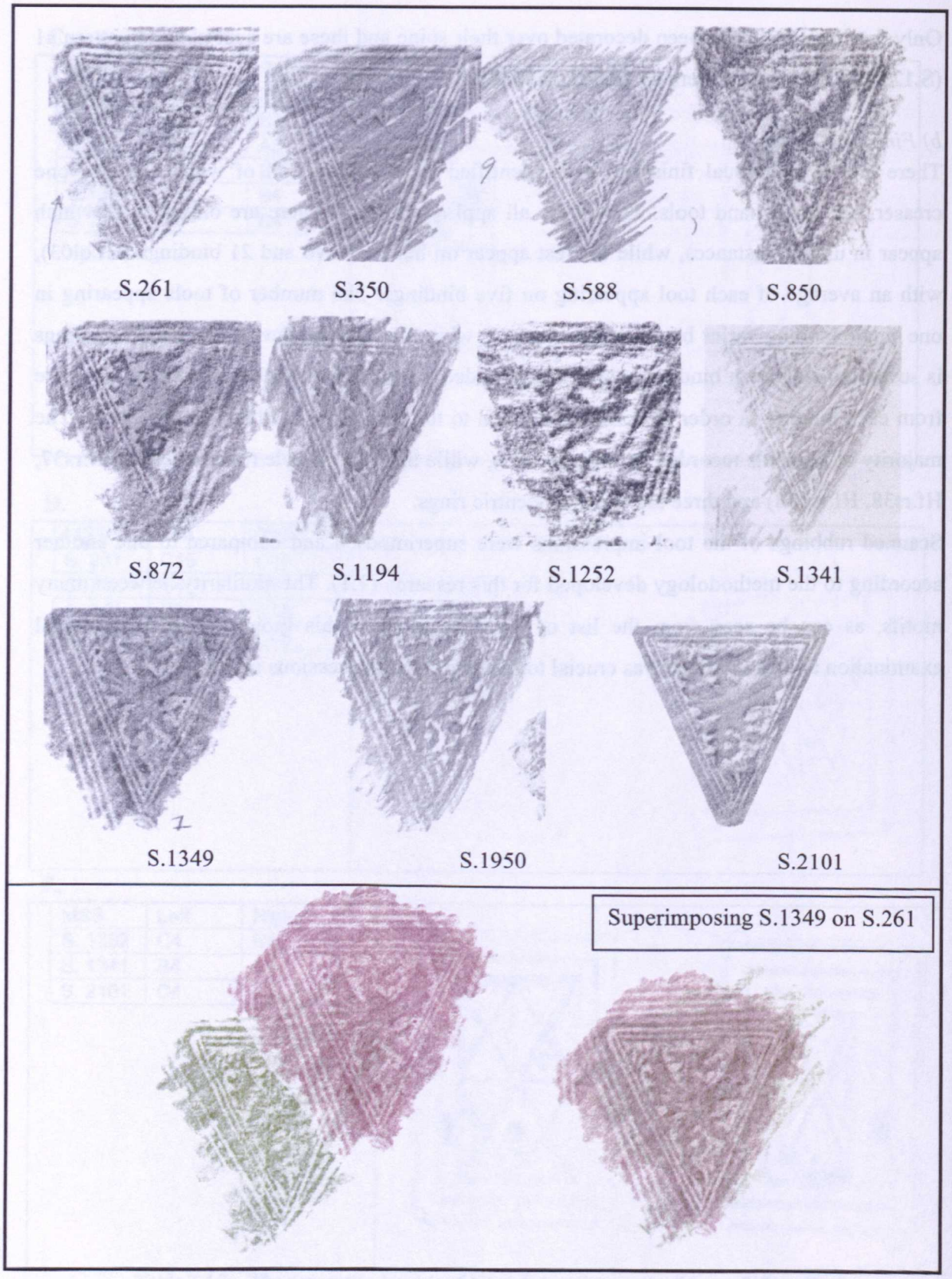


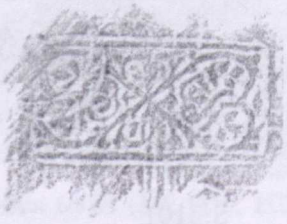
Figure 112 - Comparison of 10 impressions from the dragon tool Ha.dr03

S.350

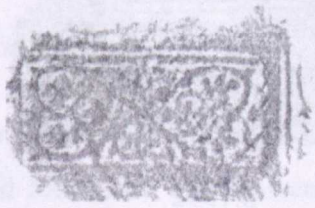
S.588

S.594

S.770

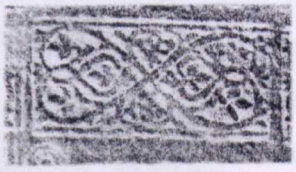


S.839

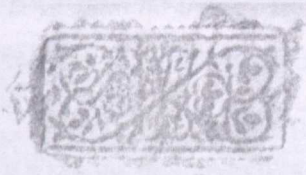


S.850

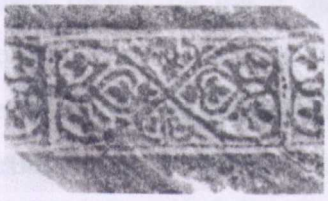
S.874



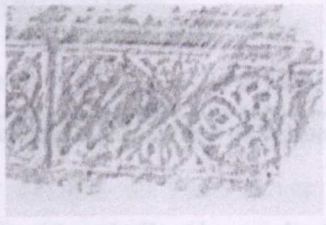
S.1145



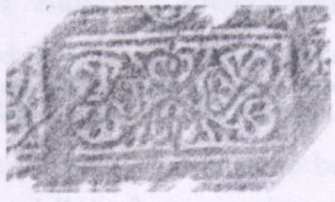
S.1194



S.1251

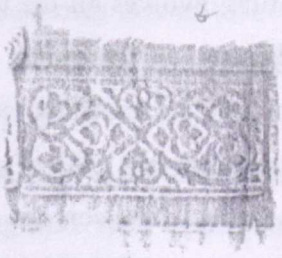


S.1341



S.1349

S.1353



S.1552

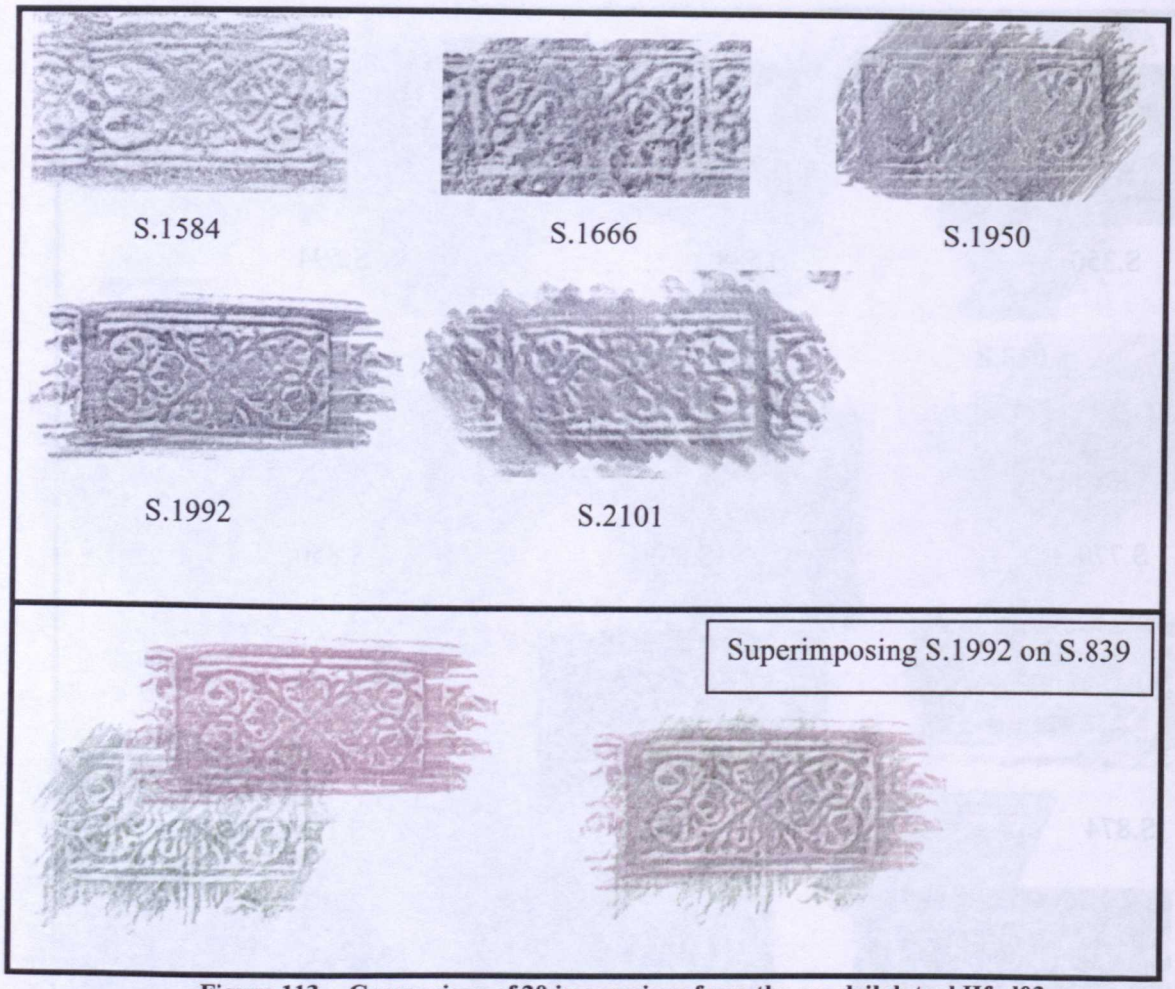


Figure 113 - Comparison of 20 impressions from the quadrilob tool Hf.ql03

Two main types of small hand tool may be distinguished in terms of their application and positioning within the layout. The first involves all the tools with rectangular shapes which are impressed repeatedly one adjacent to the other, to form concentric frames. 650 impressions[32] have been recorded in the course of this research, with small hand tools being applied in this fashion, which represents nearly 15% of all tooled decoration. In this group, depending on the size of the board surface, between one and four frames have been formed. 19 such tools have been recorded in total, many of which have very similar iconography. Four tools are floral quadrilobes (Hf.ql03, Hf.ql12, Hf.ql15, Hf.ql21), a common motif on Greek bindings and often associated with Cretan bindings, yet, as was demonstrated on the bindings of *Group 1* (3.2.1) and by Grosdidier de Maton (1989), this motif is not limited to Crete but

[32] This number does not refer to multiple impressions of the same tool on the same binding.

has also been identified to have been used by bookbinding workshops in Southern Italy and Cyprus. Numerous such tools have been recorded before on published Greek bindings. Hf.ql12 and Hf.ql15 in particular have been published in Federici and Houlis(1989), but their corresponding bindings have not been attributed to a workshop. A number of tools with several types of motifs with vegetation are also applied in the same way (Hf.fw01, Hf.fw07, Hf.fw11, Hf.fw44, Hf.fw45, Hf.fw89, Hf.fe70, Hf.fe72, Hf.fe73, Hf.fe74, Hf.fe77, Hf.fe78) as well as two interlace tools (Ho.it02, Ho.it03) and one with backward facing quadrupeds (Ha.bf03).

It was observed that some of these tools are very similar in design and dimensions, particularly two floral quadrilobes tools (Hf.ql03, Hf.ql12) and four tools with flowers and leaves (Hf.fe73, Hf.fe74, Hf.fe77, Hf.fe78). Grosdidier de Maton (2005) discussed the possibility that certain small hand tools had *"duplets, triplets* or *bouche-trous"* for building decorative frames on one book cover, in order to hasten the process of decoration. Grosdidier de Maton believes that a binder could be tooling the cover with one tool, while its counterpart(s) (*duplet, triplet* or *bouche-trous)* would remain over the fire to retain heat and be used right after the first tool in alternating order until the tooled frame was completed. This would indeed be much quicker than using one single tool. However, through the 584 rectangular small hand tool impressions that have been recorded in the course of this research, the phenomenon discussed by Grosdider de Maton has never been observed. In this group in particular, the tools with similar designs on them never once appear on the same board. Furthermore, as was discussed in chapter 3.2.1, we should not assume that Greek binders during the fifteenth and sixteenth centuries heated their tools prior to impressing them on a leather cover, therefore, based on the bindings examined during this research, there is no evidence to support the above theory.

Nonetheless, the similarity of these tools is not surprising. It would not be uncommon for a bookbinding workshop with as long time span as that of the *"Apostolis"* workshop to have possessed similar tools, either because of wear occurring after much use, which would necessitate their replacement, or because of the need to provide an extensive stock of tools for two or more binders working side by side.

The second type of tool concerns those that are impressed in random positions on the cover, but mainly within the central panel that is created by the rectangular tools. The motifs of these tools vary. There are four double-headed eagles, two of which are very similar to one another (Ha,et06, Ha.et10). The double-headed eagle is very frequently associated with the Byzantine Empire, where it was used as a motif in secular, imperial and religious depictions with connotations that changed over times. However, after the fall of the Empire in 1453, the use of the double-headed eagle gradually grew in importance as it became the symbol of the enslaved nation, while the church adopted it as its emblem, inherited from the emblems of the Byzantine emperors (Spyridakis 1962, Boudalis 2004,p.57).

The use of the double-headed eagle as a decorative motif on Greek bookbindings coincides with the prevalent fashion in the decorative arts, which is apparent from a widespread use on bindings from the fifteenth and early sixteenth centuries. Several tools with single-headed eagles have been recorded on western bindings from the twelfth century onwards, used as symbols of St John.[33] However, its first appearance as a finishing tool has not been investigated so far not its first appearance on a Greek bookbinding. In the current research, 50 double-headed eagle tools have been recorded and three *single-headed eagles,* the earliest of which (Ha.et40) is impressed on a binding **(S.1646)** that most probably dates from the fourteenth century, for which no further archival evidence is available. The large majority of the double-headed eagle tools date from the fifteenth century, which represents 55% of their overall appearance.

Another motif that appears on five different tools is the fleur-de-lis (Hf.fl04, Hf.fl05, Hf.fl06, Hf.fl18, Hf.fl37). As discussed in the *"Dandolo"* bindings (4.2.2.c), this motif is very common on Greek bindings, nevertheless as a design it does not greatly differ from similar tools found on European bindings, were it was equally fashionable. Finally, a small tool which depicts the Greek letter "ω" (Hm.is03), to which nothing similar has been recorded before,[34] and a number of small square and round rosette tools contribute to the palette of this workshop (Hf.rs33, Hf.rs35, Hf.rs37, Hf.rs38, Hf.rs188.)

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[33] Personal communication with Prof. Mirjam Foot, 04.02.20010

[34] Boudalis (2004) however did record the same tool (Hm.is03 is his MuV15) when he discussed the binding of S.165, but he has also falsely considered it to be the same tool as Hm.is04, which appears on S.968. (See *Vol.2 Corpus of the finishing tool impressions*). Another tool with the same motif but not identical to this tool also appears on the rebound Greek twelfth-century manuscript *Patmos 220.*

The straight lines on the 39 bindings are all triple. There are 7 bindings on which a multi-line tool has been clearly identified, such as a creaser or a fillet, but it was not possible to identify if all or any of the straight lines might have been impressed with the same tool. The three concentric rings were also not considered for the purposes of comparison. There are numerous such tools recorded on Greek bindings, with single, two, three or four rings, and through this research alone 248 such impressions have been recorded. However, it is a motif that could be very easily copied and made to look identical to another, while their impression is influenced considerably by the force that was applied when tooling and the depth of the impression in the leather (Boudalis, 2004, p.57), so that it is not safe to draw conclusions by comparing their impressions.

Figure 114- Endband of S.1145 showing tooling with concentric circles at the board edge below it

It is mainly the positioning of the concentric rings on a cover that could be distinctive, rather than the tools themselves. Nine bindings (**S.588, S,594, S.616, S.643, S.1145, S.1183, S.1251, S.1255, S.1552)** from the group considered here have concentric rings that are impressed on the edges of the boards below the endbands (fig.114).

It was observed that the combinations of finishing tools chosen for each binding were not always random. Instead, a few patterns were formed, which allowed the sub-grouping of a number of bindings:

A

S.20
S.261
S.1613

B

S.616
S.773
S.1255

C

S.588
S.850
S.872
S.1145
S.1234
S.1251
S.1252
S.1341
S.1349
S.1353
S.1552
S.1584
S.1666
S.2101

D

S.350
S.594
S.770
S.839
S.874
S.1194
S.1947
S.1950
S.1992

Groups A and B incorporate tools which appear only randomly on other bindings, while the bindings within each of these groups have nearly identical combinations of tools. The two larger groups C and D, however, are less strictly defined and there are many overlaps of combinations between them, which makes it difficult to base any arguments upon these.

3.2.2.5 Conclusions

The notes discussed at the beginning of this chapter have helped us to date several manuscripts and their bindings and confirmed the Cretan provenance of others. Nevertheless, additional evidence was required to understand more about the bookbinding activity related to the scriptorium of the *"Apostolis"*, for which further analysis of the structural features and the decoration was important.

There are certain manuscripts amongst the 39 discussed that can be shown to have been bound during the lifetime of Michael Apostolis (15% of the bindings with at least approximate dates) and others that coincide with the phase of the scriptorium after his death (1474 or 86). This is the only safe division that could be made relating to the production of bindings and the involvement of Michael Apostolis and his son Aristovoulos Apostolis. It is still not possible to determine the exact relation of the scriptorium to the binders that were responsible for the bindings that have survived. Were the binders working alongside the scriptorium, as a joint operation or was the binding work given to an independent enterprise of which the scriptorium was merely a client? The bookbinding workshop was undoubtedly responsible for binding manuscripts by Michael and Aristovoulos Apostolis and scribes related to them (Wittek, 1953, p.290). It is also clear that authors and copyists such as Ioannis Plousiadinos whose work was also supported by Cardinal Bessarion, in the same way as Michael Apostolis's was, also used the same bindery to bind their manuscripts. It is an open question whether the bookbinding workshop maintained a closer relation directly with the scriptorium of Michael Apostolis or with Cardinal Bessarion's extensive efforts to gather Greek manuscripts and commission the writing and copying of new ones. Moreover, the number of different scribes whose manuscripts were bound in this workshop, not all of whom were related to Michael Apostolis, may indicate that it must have worked as an independent enterprise, binding books by order, whether or not it was attached to the Apostolis

scriptorium. There is nevertheless, persuasive evidence that the bookbinding workshop must have resided in Crete, based on the numerous manuscripts still in their first bindings that have annotations showing that they were also written there.

The different techniques or details in execution described in this chapter and the 40-year, or longer, period during which this workshop can be shown to have worked, demonstrate that more than one individual was involved with the binding of these manuscripts, working either side-by-side, or in succession to one another, or perhaps both of these together. A large number of finishing tools certainly remained in common use between them for the entire period during which manuscripts were bound there, as we see them appearing throughout the recorded lifetime of the workshop.

Knowing that more than one binder was responsible for binding these volumes, an attempt was made to identify a pattern in the way that the main structural characteristics and/or decoration of the 39 bindings was combined, in order to identify individual binders. This was based on the subgroups of features that were identified for the endleaves, the endbands, the bosses, the textblock edge decoration, the layout and the finishing tools, as presented above. An examination was made to see, for example, whether all the manuscripts with the same type of endband (e.g..type A) shared also the same type of bosses (e.g. type B) and the same type of layout pattern (e.g. type C).
It was surprising to notice however that there were no consistent patterns. The majority of the features that could be divided into groups, such as the three formats of endleaves, the three different types of endband, the four types of boss, the two types of board edge profile and the five different decorative layout patterns, appeared in random combinations. The features that coincided consistently on the same manuscripts have been the drawn decoration of the textblock edges and the tools used for the decoration of the covers. These have appeared mainly on two small subgroups of bindings, B and C from the finishing tool combinations and A and B from the textblock edge decoration. Moreover, subgroup C of the finishing tool combinations is not sufficiently homogenous as a group to be able to base solid arguments on.

Having said that, a small group (**S.363, S.770, S.874** and **S.1194**) can be identified by similarities in the combinations of the tools used, in the colour of the leather covers and the endband styles. **S.1194** can already be dated to c.1491, based on the note that was mentioned above (3.2.2.2). **Bruxellensis 18170** is also part of this subgroup and it is mentioned here on account of an informative note written in the hand of the scribe Aristovoulos Apostolis at the age of 24:

> *"On Apollonius Argonauticus: With the blessing of God and the blessing of the salary (received for it) I, Aristovoulos Apostolidis wrote this book in Crete. 1489 in the month of March, 31st."*

We may therefore date the bindings of **S.363, S.770** and **S.874** to around or after 1489 and 1491.

Three more bindings are closely linked, mainly on account of the identical paper used for the textleaves of two of them and on the appearance of certain tools exclusively on these three bindings in identical decorative layouts, which may also suggest that they were produced within a limited period of time. These are **S.616, S.713** and **S.1255.** Based on the dates of the paper used for the textleaves and endleaves and the inscriptions found in the manuscripts, all three bindings can be dated to c.1504.

The binding of **S.1992** is unique and stands out from the rest of the group. Although the tools impressed on its cover are from the same stock, the structural characteristics of the binding, such as boards with squares and an internal bevel on the edges, hybrid endbands sewn in endband recesses on the boards, the layout of its decoration (pattern A6), the red coloured edges and the Italian style catchplates, are all features that conform to western structures. These features are combined with Greek elements on this binding, such as the unsupported sewing with V-nicks cut at the sewing stations, the chevron type weaving of the secondary endband and the bronze bosses. This overlap of styles may imply that:

a) The binder of this book was trained in the Greek bookbinding tradition but attempted to copy a western binding while failing however to discard all his habits as a binder of Greek books.
b) Two people from different bookbinding backgrounds worked on this binding together, to produce a somewhat improvised version of a western binding.

Of the two, the former seems more likely, although it cannot be confirmed. The decorative tools impressed on its cover, however, allow no doubt that the binding, or at least its tooled decoration, was made at the *"Apostolis"* bindery.

It is curious to know how such a large number of manuscripts with bookbindings in common arrived at the monastery. Unfortunately, apart from the note in **S.2103** that confirms that the manuscript had left Crete by 1587 A.D., we lack any archival documentation or other indisputable evidence. The ownership notes in **S.1506** and **S.1584** may however suggest a possible scenario. As discussed above, Gerasimos Yalinas, was a monk at the dependency of the monastery of Saint Catherine in Handakas (Crete), and he is known to have completed a number of manuscripts there. In one of them, **S.1451** he signs:

> *"The present eortologion (book of feast days) by the hand of me, Gerasimos Yalinas Sinaitis from Crete. At the siege of Crete. Written at the famous monastery of Saint Catherine that belongs to the Sinaites. May those who sing these psalms pray for me to the Lord for my many sins. 1658 in the month October 22, indiction 11".*[35]

A similar note is found on **S.1452** but dated 1661.

Gerasimos Yalinas is a figure who links the group of bindings discussed above and the monastery of Saint Catherine through the dependency of the monastery in Crete. He personally owned two bindings from this group and produced several others at the dependency in Crete, which ended up in Sinai. From **S.1451** and **S.1452** it is clear that Yalinas was still in Crete in 1661, while the island was under the 23-year siege by the Turks.

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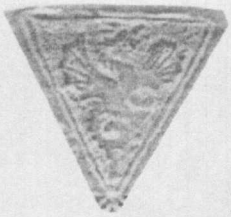
[35] *«Ετελειώθη το παρόν εωρτολόγιον δια χειρός εμού Γερασίμου ιερομονάχου Ιαλινά σιναϊτου του Κρητός. Εν τω περιφραγμώ της πολήμάχος Κρήτης. Εγράφη εν τη περίφημω μονή της Αγίας Αικατερίνη των Σιναϊτών. Και οι ψάλλοντας αυτό εύχεσθαι ιμοί δι'αυτόν Κύ(ριον) υπό των πολλών μου σφαλμάτων. Αχνη' εν μηνί οκτωβρίου κβ' ινδικτίωνος ια'»*

However, in 1669 Crete fell to Turkish rule an event which was followed by the extensive destruction of Cretan churches and treasures and the dispersion of the Cretans mainly towards nearby islands and towards Zakynthos (Fragkouli, 1998). Many of the monks at the dependency also moved to Zakynthos, but others certainly moved to the monastery in Sinai.

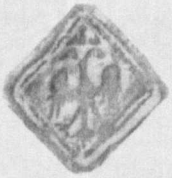
Further research on the library of the Cretan dependency would perhaps reveal a) what its collection encompassed and whether the *"Apostolis"* bindings presented here were ever part of it; and b) how and where it was dispersed to, as we do know that after 1669 and during the Turkish occupation the dependency and the famous Sinaitic school it had supported for centuries went into terminal decline and its main church was turned into a mosque (Fragkouli 1998, p.126). The glorious days of the dependency and the school were never to return and it might be a possibility, for which further research on more *"Apostolis"* bindings will hopefully provide proof, that following these difficult times for the dependency, part of its library at least found refuge at the monastery of Sinai, along with a number of monks and perhaps with some *"Apostolis"* bindings.

3.2.3 Group 1 – The *"Dandolo"* bindings

DECORATIVE TOOLS ON THE BINDINGS OF GROUP 1



1. Ha.dr01



2. Ha.et05

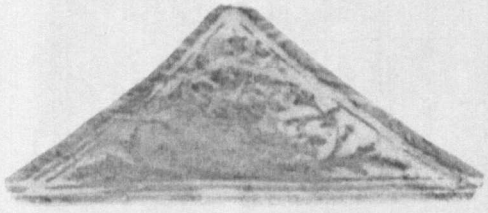
3. Hf.fl03

4. Hf.ql04

5.Hr.rg01

6. Hf.fw20

7. Hr.rg03



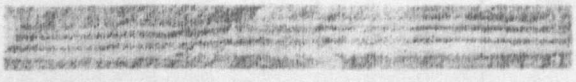
8. Ha.et03

9. Ha.bi03

10. Hf.rs21

11. Hf.rs25

12.



13.

(Full size rubbings)

	Tool / Manuscript	1 	2 	3 	4 	5 	6 	7 	8 	9 	10 	11 	12 
		Ha.dr01	Ha.et05	Hf.fl03	Hf.ql04	Hr.rg01	Hf.fw20	Hr.rg03	Ha.et03	Ha.bi03	Hf.rs21	Hf.rs25	~
1	S. 276	x	x	x	x	x					x		
2	S. 322	x	x	x	x	x					x	x	
3	S. 339	x		x	x	x	x		x		x		
4	S. 375	x	x	x	x	x	x		x			x	
5	S. 441	x	x		x	x					x		
6	S. 603	x	x	x	x	x					x		
7	S. 881				x								
8	S. 1428		x					x		x			x
9	S. 2051	x		x	x	x					x		
10	BL Royal 1A xv		x	x		x					x		

Table 3.2.8 - Correspondence of manuscripts and the tools used to decorate the bindings of Group 1

(Rubbings not in scale)

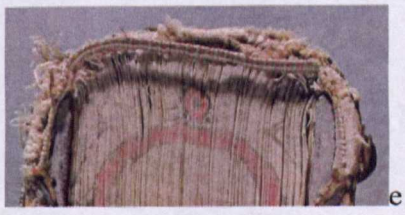
S.276

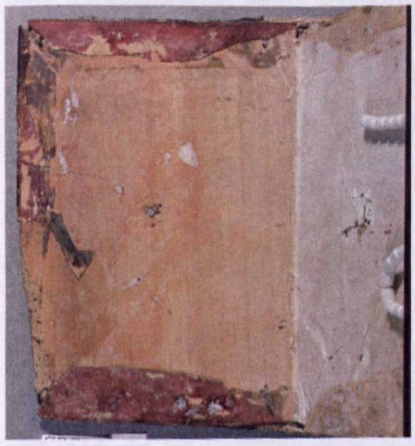

a

b

c

d


e


f

S.322


a


b


c

S.339


a


b


c


d

S.375

a

b

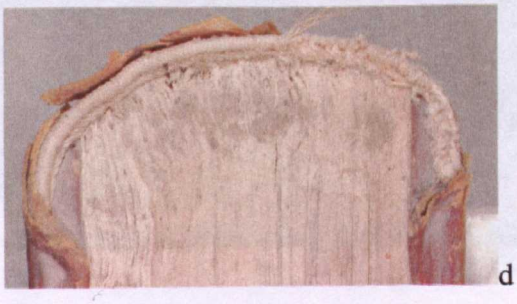
c

S.441

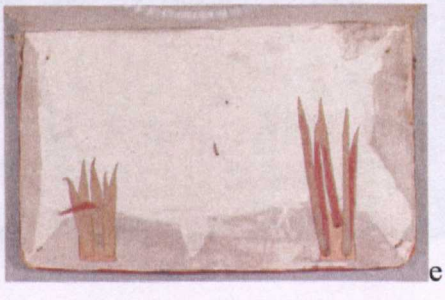
a

b

c



d



e

S.603

a b c

S.881

a b c

S.1428

a


b


c


d

S.2051


a


b


c

British Library, Royal 1A.xv

a b

c

e

d

3.2.3.1 Introduction

This group consists of 10 manuscripts, 9 of them are written in Greek and one is a bilingual text in Greek and Latin (**BL Royal A1.xv**). Nine of these manuscripts are from the library of Saint Catherine, while one is in the British Library[36]. They contain the *New Testament* (**S.276, S.2051**), *Sayings of the Fathers* (**S.322, S.375**), *Ascetica* (**S.441**), *Menologia* (**S. 603, S.1428**), and an *Horologion* (**S.881**).The decoration of their bindings as well as certain structural elements that are common between them suggest that they are the product of the same workshop, either of South Italian or Cretan origin, as will be discussed in the following sections. Codicological evidence may support a date for the bindings between c.1522 and c.1570.

3.2.3.2 Paleographical Notes

This group possibly coincides with the group that Grosdidier de Maton (1991, pp.426-427) briefly mentioned as one of her five identified groups of Creto-Venetian bindings. She describes that in her group there are 11 finishing tools identified from a total of ten matching bindings, but unfortunately she does not provide any rubbings or photographs of these, while she only gives the shelfmarks for two of these (Scorial.X.II.15 and Vat.Gr.1616). In Federici & Houlis (1988) the tools of Vat.Gr.1616 are given, from where we understand the relation of Grosdidier de Maton's group to the Dandolo bindings and we find also one more manuscript binding (Vat.Gr.2129) identified to match the tools presented in our group.[37]

From those manuscripts in our group, only four are in their first binding (**S.603, S.1428, S.2051, BL Royal**), since the rest have evidence of rebinding, such as spine fold repairs, earlier sewing holes, traces of previous sewing threads or tanning stains from a previous cover. The British Library manuscript was included in this group on account of the close similarities of its binding to the nine Sinaitic bindings, but also because it contributes

[36] A note on f.7 signed by Patrick Young, the Royal librarian, confirms that the manuscript was already part of the Royal collection by 1652.

[37] Unfortunately, the closure of the Vatican Library in July 2007 for three years forbade the examination of these two manuscripts to reveal further evidence within the time-frame of this research,.

valuable information with regard to the provenance of the manuscripts. An inscription on f.1. reads *"Belonged to Matteo Dandolo 137' "*[38]. Matteo Dandolo (?-1570) was the Venetian Ambassador in Rome (1549-1550) and France, renowned for being a man of influence and great wealth as well as a collector of manuscripts. A collector of Greek manuscripts too, it has been suggested that he found many of his books in the Greek monastic libraries of South Italy. After his death in 1570, the majority of his collection passed through unidentified routes to enrich the then newly founded Royal Library of the Escorial in Madrid in the year 1573 (Lake 1904), where there are today more than 40 manuscripts that once belonged to his collection. At least three of these manuscripts (Γ.II.3, Σ.II.6, and T.II.12) have similar decoration to the ten bindings discussed here[39], while they also carry notes similar to those in the BL Royal manuscript, with Dandolo's signature and accession number. Hence it is difficult to ignore the possibility of a link between Matteo Dandolo and the person who bound and/or possibly owned these manuscripts prior to becoming part of his collection.

Paleographic investigations into the texts and writing styles of manuscript BL Royal 1A.xv suggest that it was *"probably executed by a Greek resident in Italy, the Greek hand being a natural one, while the Latin is imitative and modeled on the Italian hand of the period."*(British Library on-line Manuscripts Catalogue, 2007). Although there is no firm evidence to confirm this observation, it is a possibility that we must take into consideration. The binding appears to be contemporary with the textblock as there are no signs of re-binding, yet this is said with some reservations, as the textblock might have been kept unbound for some time. The watermark in the textleaves is similar to Briquet 15656 dated 1499.

Similar information is given in the manuscript **S.322.** The manuscript is a Lexicon of Pseudo-Kyrillos which is written in Greek in a *Regio* script, a Greek handwriting that is

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[38] «ματθαίου δανδούλου ρλζ'». The same inscription only with different numbering (possibly the catalogue numbers they were given while part of his collection), with the same handwriting is found in 41 Greek manuscripts at the Royal library of the Escorial, known to have been owned by Matteo Dandolo. Greek numbering as in this note is also present in notes in some Escorial Matteo Dandolo manuscripts, randomly between 10 and 112 and they are most probably catalogue numbers of Dandolo's collection.

[39] I am greatly indebted to Mr. Marcelino del Otero, librarian at the Biblioteca Real, Monasterio de El Escorial for providing me with photographic material from these three bindings which has helped to identify them with this group.

associated by paleographers with South Italy, between 1200 and the mid-thirteenth century.[40]

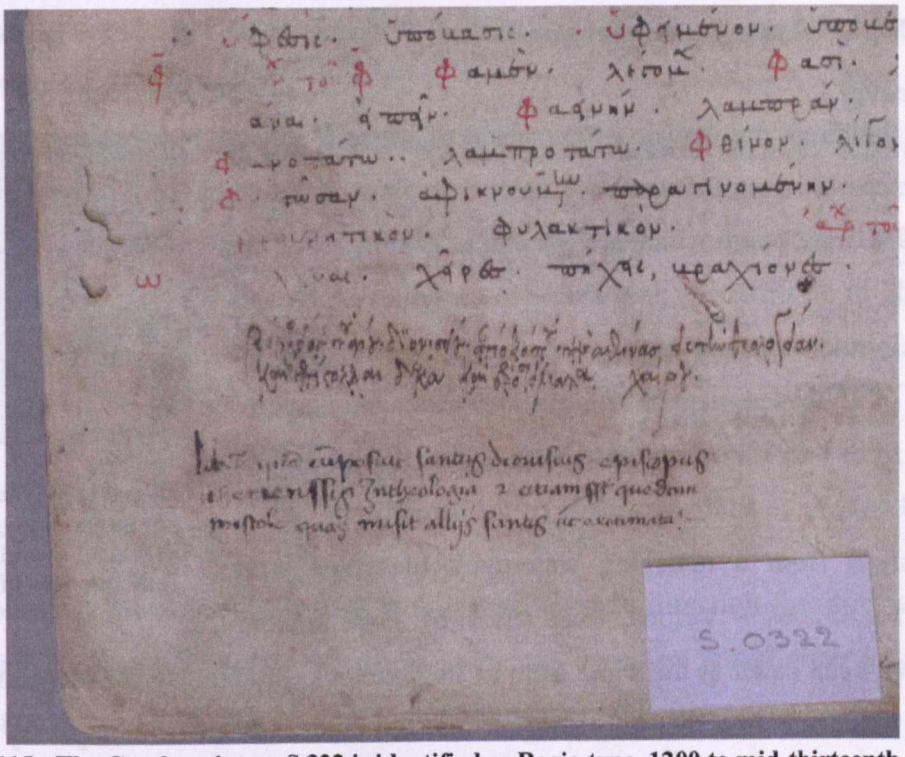

Figure 115 - The Greek script on S.322 is identified as Regio type, 1200 to mid-thirteenth century from South Italy, below which is a later inscription referring to the contents of the book, copied in Greek and Latin.

From other notes we learn when these manuscripts might have arrived at the monastery. In **S.375** we read:

> *f. 4v. "In the year 1597 AD on the 29th of November I, Gerasimos hieromonk came from the economeion of Crete and brought this book and I dedicate it to our holy monastery of Sinai and may whoever steals it or cuts a leaf be excommunicated by the 318 God-bearing holy Fathers and unforgiven by God pantocrator and may his place be with those who decreed the crucifixion of the Son of God."*[41]

and in **S.603:**

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[40] Personal communication with Agamemnon Tselikas, Head of the Historical and Paleographical Archive, of the National Bank of Greece Cultural Foundation, July 2008.

[41] *«ετους ζρς' (7106 AM = 1597 AD) νοεμβρίω μηνί κ' ήλθα εγώ ο γεράσιμος ιερομόναχος εκ το οικονομίον της κρήτης και ήφερα το παρόν βιβλίον και το αφιερώνω είς το άγιον ημών μοναστήριον το σιναίον και όστις το ξενώση ή κόψη το φίλον να είναι αφορισμένος παρά των τιη' θεοφόρων αγίων πατέρων και ασυγχώρητος παρά θεού παντοκράτορος και η μερίς αυτού μετά των ειπόντων άρον σταύρωσον τον υιόν του θεού»* (Boudalis, 2004, p.52).
Economeion is the principal "office" of a monastery that deals with all financial and administrative matters.

" I Nyfos [...] brought the present minaion to Mount Sinai, from Egypt, 1570 October 22"[42]

3.2.3.3 Material and Structural Similarities

a) Endleaves

In eight bindings the endleaves are made of western paper, and are separate from the textblock apart from those in **S.603** and **S.2051** right board which are integral to gatherings of the textblock. In all instances they are sewn to the textblock and have their outermost leaf pasted to the board, nevertheless the number of flyleaves in each binding appears to be random, ranging from 1 to 7. Four of these manuscripts (**S.322, S.339, S.375, S.441**) have endleaves made of the same paper, as we can confirm from a matching watermark identified with Piccard No.032067 – Verona, 1514 (fig.116). Each endleaf must have been sewn at the same time as its textblock, judging by the identical threads that are used, and this fact may suggest that the endleaves are contemporary with the bindings. We can therefore establish a *terminus post quem* for the date at which they were made. **BL Royal** has an *anchor in circle* watermark in the textleaves paper similar to Briquet 588 (1521-22) and 589 (1519). The earliest watermark was found in the endleaves of **S.603**, identified as Piccard No.032263 – Ravenna 1509.

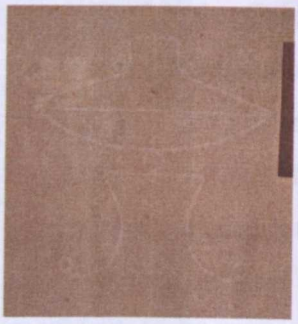


Figure 116 -Watermark in paper dating from 1514, used as endleaves in four Dandolo bindings.

b) Sewing

All ten textblocks were sewn with an unsupported link stitch. The threads used were S-ply but inconsistent with regard to their thickness and the tightness of their twists. The six volumes not in their first bindings (**S.276, S.322, S.339, S.375, S.441** and **S.881**) were re-sewn using the earlier sewing stations and naturally have a varying number of them. It is nevertheless interesting to see that all the original stations were re-used and that new stations were not created in any of the re-sewn bindings. It shows a consistency towards

[42] *«το παρόν μινέον έφεραν [...] νηφ[ος] [...] από [τ]ον εγιπιτο, `Ζοκ' οκτοβρίου κβ' εις σινεόν όρος»*. From other notes resembling this one (see 3.2.4 *Group 28*) we know that Nyfos was of Cretan origin and a monk at the monastery of Saint Catherine. Egypt here is most certainly referred to as the dependency of the Monastery of Saint Catherine in Cairo.

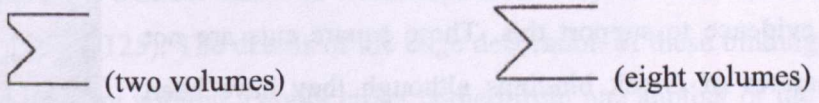
the restoration on the part of the binder, who used the existing stations instead of creating new ones which might have fitted his sewing style best. The first bindings in this group were sewn on 3 **(S.1428, BL Royal)** or 4 **(S.603, S.2051)** stations, the latter also having taller textblocks. (Table 3.2.9)

MSS	**S.276**	**S.322**	**S.339**	**S.375**	**S.441**	**S.603**	**S.881**	**S.1428**	**S.2051**	**Royal**
No. of stations	7	5	5	6	6	4	4	3	4	3
Textblock heights (mm)	273	253	344	356	259	329	230	221	227	220

Table 3.2.9 - Number of sewing stations and textblock heights

c) Boards

All ten bindings have wooden boards with a vertical grain direction (head to tail).Three are characterized as hardwood and two as softwood, based on visual observation. Their board edges are all grooved according to the following two types:



(two volumes) (eight volumes)

The method of attachment of the boards to the textblock is not visible in all but one binding. On the inner side of the left board of **S.276**, the paper pastedown has lifted and it is possible to see five channels corresponding to five of the seven sewing stations of the textblock. (see photo S.276f)

d) Endbands

In all of these bindings we find a similar type Greek double-core endband, sewn through every gathering of the textblock and sewn into the boards in the characteristic Greek style (Szirmai, 1999, p76).

Figure 117 - Secondary endband sewing on S.399

Five of these (**S.276, S.322, S.339, S.881**

and **S.2051**) also have a secondary endband sewing woven with green, red and white silk thread wefts (red and green only in **S.2051**), sewn on natural-coloured thread warps (fig.117) of a type that has been described as typically Cretan in style (Irigoin, 1962, p.105 and Boudalis, 2004, p.67)

e) Covering

Based on visual observation, full covers of tanned goatskin (two volumes) and sheepskin (eight volumes) of brown (four), red (two) and reddish-brown (four) colour were used on these bindings.

The turn-ins in 9 bindings have been folded with open corner-mitres, apart from **S.375** which has mixed lapped corners.

It is worth noting that small square pieces have been cut away from the pastedowns and the turn-ins where the straps had to pass through, perhaps to compensate for the thickness of the straps, which would obstruct the proper closing of the book (fig.118). They could of course also be the result of replacement straps being added to the books at a later stage, but there is no substantial evidence to support this. These square cuts are not standard features of Greek bindings although they have been recorded on some bindings before (Federici & Houlis, 1989). Nevertheless the regularity and similarity with which they appear in this group of bindings (all but **S.375**) gives additional weight to the argument that this group must be the work of one binder or workshop.

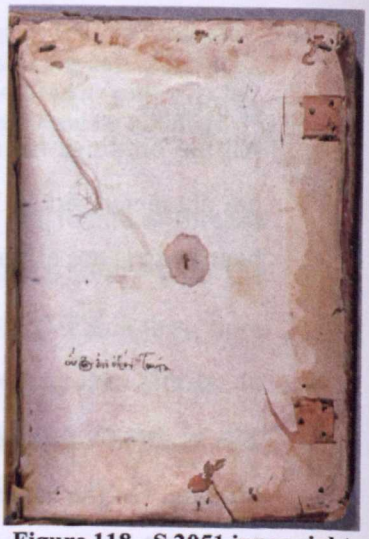


Figure 118 - S.2051 inner right board showing square cuts at the pastedown and turn-ins

f) Furniture and Fastenings

Seven out of ten bindings have preserved some or all of their bosses, which in all cases are hemispherical, made from one solid piece of a copper alloy. Five bosses were nailed to each board, four at the corners and one in the centre. The **BL Royal 1A.xv** binding and

S.1428 have no bosses and there is no evidence either from nail marks or impressions in the leather that they might once have had them.

Evidence of a fastening system is found on all the bindings. Those on the Sinaitic manuscripts are all lost or broken off and only traces of them can now be found. The Royal binding is the only one from this group to have all of them surviving, in an unusually good condition, from which we can identify that double interlaced straps[43] with a stirrup ring attaching to an edge pin were used. It is possible that this fastening system would have been used on the nine other bindings as well.

g) Textblock edge decoration

The edges of the textblocks in the bindings of this group are cut flush with the edges of the boards, as is common in Greek bindings. They have all been decorated with a black and red ink drawing formed of two or sometimes three rings, which are connected with a rope-like interlace design (fig.119).[44] This type of decoration has been known to us from many published Greek bindings that have either received the influence of Italian bookbinding or have a direct link with workshops from Italy and Crete (see, for example, Regemorter, 1967 p.125). The details of the edge decoration of these bindings are almost identical, and they are without a doubt either copied from one another or the work of the same hand.

[43] "Interlaced straps are a form of straps consisting of pulling one end of flexible material through the slit forming a geometrical pattern." (Ligatus Bookbinding Glossary)

[44] There is little evidence as to where this style of edge decoration might have originated or what it represents. One source given by Boudalis, 2004 is that it resembles the common Byzantine interlaced straps and stirrup rings, such as seen on the BL Royal binding, but this is as yet speculative and debatable.

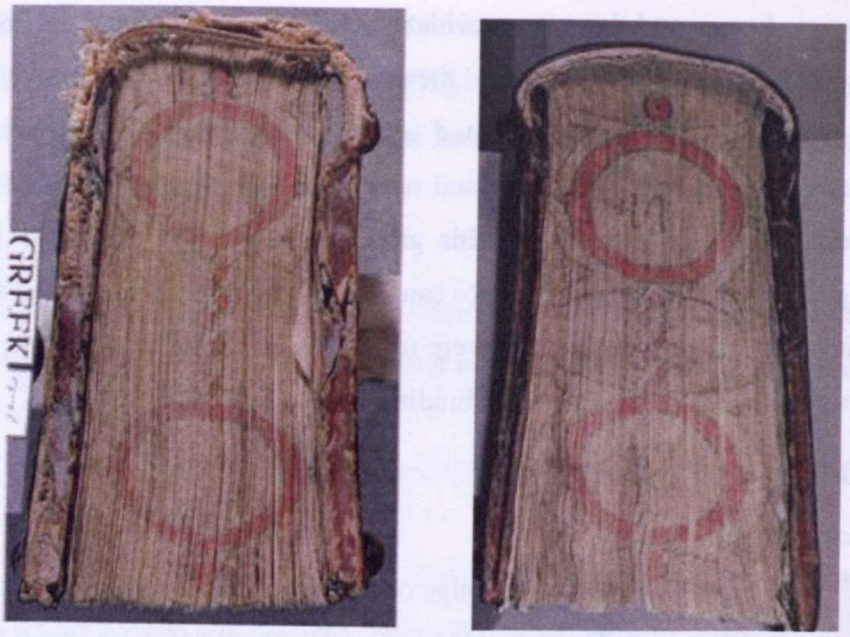


Figure 119 - Edge decoration of S.276 (left) and S.339 (right)

3.2.3.4 Decoration

a) Decorative layout of the cover

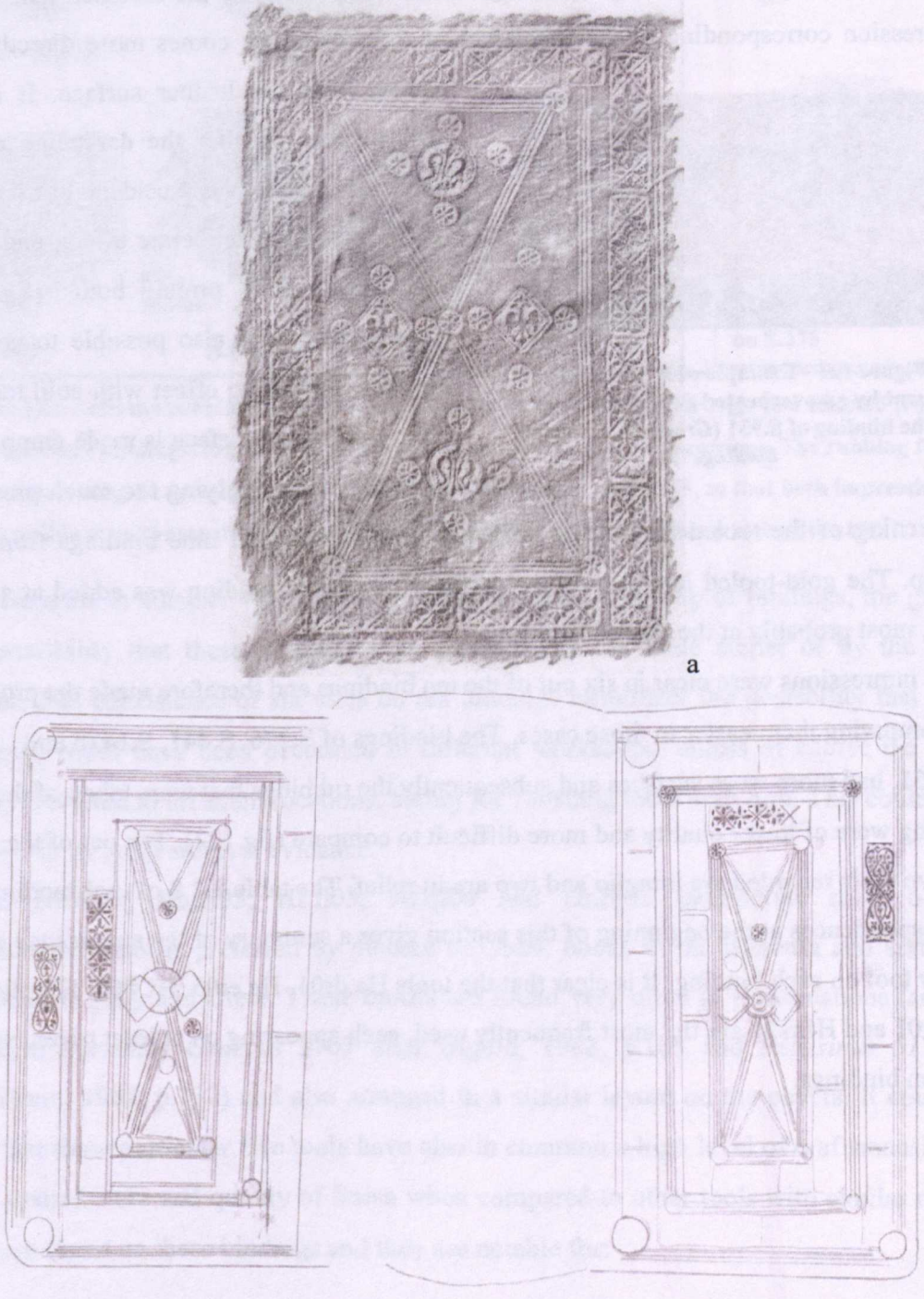
The predominant decorative patterns (Pattern B2, B3, B4) on the covers of this group are found often on Cretan bookbindings (e.g. Hoffmann, 1982, p.732, Irigoin, 1967, p.104).

MSS	S.276	S.322	S.339	S.375	S.441	S.603	S.881	S.1428	S.2051	Royal
Layout pattern	B4	B3	B4	B3	B3	C17	Not visible	B2	B3	B2

Table 3.2.10 - Layout patterns

They are formed of two, three or four concentric panels, according to the size of the book, outlined with repeated rectangular tools that run around the edges of each panel to create a frame (Hf.ql04, Hf.fw20, Hr.rg01, Hr.rg03). A saltire is drawn within the inner panel. In the case of **S.375** (right board) the inner panel is further divided by diagonal lines into 12 triangles (C10) and two lozenges and on **S.603** (both boards) into 16 triangles (C17). The spaces within the triangles are filled in with small circular, lozenge-shaped or triangular hand tools, featuring floral motifs (Hf.fl03), a double-headed eagle (Ha.et03, Ha.et05) or a dragon (Ha.dr01), while two types of rosette motifs are tooled over the points where the straight lines intersect (Hf.rs21 and Hf.rs25).

The layout is formed by triple straight lines butting consistently at the joints. A multi-line tool (creaser or fillet) has been identified clearly to have impressed these lines on the covers of **S.322**, **S.603** and **Royal 1A.xv** (fig.120). There is no spine decoration on any of the bindings.



a

b

Figure 120 - a) BL Royal 1A.xv, left board cover, b) drawing of the decoration of S.441

b) Finishing Tools

The decoration on the covers of these ten volumes has been made with finishing tools impressed in blind and possibly heated. When a tool is impressed hot rather than cold into a leather cover, it will usually darken its surface, especially at the recessed part of the impression corresponding to the relief part of the tool which comes more directly into contact with the leather surface. It is not always clear whether the darkening of the leather may have been accidental or whether it was used as a deliberate effect, and there are cases that prove both (fig.121). Nevertheless, it is also possible to achieve the same darkening effect with cold tooling, when the leather surface is made damp prior to tooling or by applying too much pressure. Darkening of the tooled surfaces is observed on the covers of nine bindings from this group. The gold-tooled lettering on the spine of the Royal binding was added at a later date, most probably at the British Museum.

Figure 121 - Example of a leather cover burnt by an overheated finishing tool from the binding of S.931 (*Group 25, "Raithos bindings"*)

The impressions were clear in six out of the ten bindings and therefore made the process of comparing them easier in those cases. The bindings of **S.276, S.441, S.1428** and **S.2051**, had more worn surfaces and subsequently the rubbings that were taken of their tooling were of lower quality and more difficult to compare (fig.122). Ten out of the twelve tools recorded are intaglio and two are in relief. The table 3.2.8 of tool-binding correspondences at the beginning of this section gives a summary of the appearance of every tool on each binding. It is clear that the tools Ha.dr01, Ha.et05, Hf.fl03, Hf.ql04, Hr.rg01 and Hf.rs21 are the most frequently used, each appearing on at least seven out of the ten bindings.

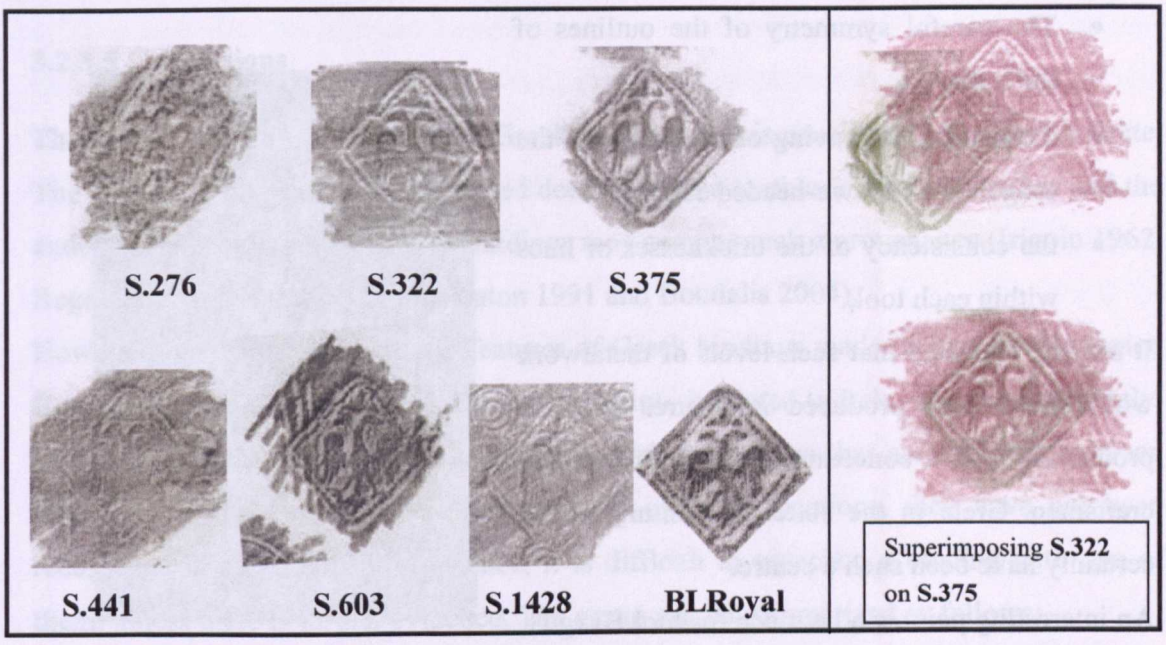


Figure 122. Left: the rubbings of the impressions of the same two-headed eagle tool Ha.et05 from seven different bindings. Right: an example of comparing two of the impressions. The rubbing from S.322 after having its opacity changed to 50%, is superimposed on S.0375, so that both impressions can be visible simultaneously one through the other. Below right: a perfect match of the two

As discussed in Chapter 1.1.5, the more tools shared by a group of bindings, the greater the possibility that these bindings were produced in the same atelier or by the same binder. The coexistence of six tools on ten bindings minimizes the possibility that these bindings could have been decorated in different workshops, unless of course the same binder travelled to different locations, taking the finishing tools with him. This could only be proven by solid archival evidence.

Tools Ha.dr01, Ha.et05, Hf.fl03, Hf.ql04 and Hr.rg01 incorporate most of the characteristic motifs preferred by binders of Greek books in the fifteenth and sixteenth centuries in Italy and Crete. These motifs are found very often in combinations (see for example *Parisinus Graecus* 2707 after Irigoin, 1962, p.105 and *Perusinus 51* after Hoffmann, 1982, p.732) and also arranged in a similar layout on the covers. It could be said that these particular five tools have also in common a high level of craftsmanship in their manufacture and quality of finish when compared to other tools with similar motifs to those found on these bindings and they are notable for:

- The careful symmetry of the outlines of the tools,
- the detailed engraving of the wings of the dragon and the two-headed eagle
- the consistency of the thicknesses of lines within each tool,

It may be expected that such levels of metalwork would have been produced in centres of book production with a concentration of highly skilled craftsmen. Crete in the sixteenth century would certainly have been such a centre.

Figure 123 - Upper left corner: a rosette motif similar to Hf.rs21. From a late 14th century fresco in the Byzantine church of S.Stefano in Soleto, South Italy.

An interesting point can be made for tool Hr.rg03, which is a borderless small hand tool engraved in relief which appears only in **S.1428** and is used repeatedly on its covers to create a frame in between the two concentric panels. It is a type of interlace arabesque design which is clearly of Italian origin (Harthan 1985, pl.20 and Nuvoloni 2000, p.94), appearing on bindings from the late fifteenth century onwards, which was passed on to France (see for example FolB 225(3) INV 297FA from BSG database) and later, in the 1560s, to England (Foot 2002) but was never much used in Greek binding decoration. This is the first time that it has been recorded on a Greek binding, suggesting perhaps an Italian, and certainly a western European, origin or influence, for this binding. Tools Hf.rs21 and Hf.rs25 are both common types of rosette motifs that appear in early Byzantine iconographic and decorative arts (fig.123), and are found in numerous variations on Greek bindings, as well as on many bindings throughout Europe.

3.2.3.5 Conclusions

This group conforms to the style of Greek bindings that is usually associated with Crete. The layout and the motifs of the tooled decoration, the textblock edge decoration and the endbands encountered in all these bindings may suggest such a provenance (Irigoin 1962, Regemorter 1967, Grosdidier de Maton 1991 and Boudalis 2004).
However, the distinction between features of Greek bindings made in Venetian-occupied Crete or in other Greek-populated areas at the time it related to Italy, such as South Italy, has not been clarified so far. If there are any characteristics that are different between them that would denote a peculiarity in any of these locations, they have not been recognized in current research. Hence, it is difficult to associate a binding with one of them, unless there is further evidence. The group can be summarized as follows:

1. There is no evidence to suggest that these bindings were made at the Monastery of Saint Catherine, instead it is more likely that they arrived there already bound. There is one note found in **S.375** to confirm this evidence which states that the relevant manuscript came to the monastery from Crete and the date of its arrival (1597) is late compared to the estimated time of the creation of its binding. However, codicological evidence does not help us understand where it originates from and whether Crete was the place where at least one manuscript of this group was written, or whether this was a station on its route to the monastery.

2. Egypt was most likely a temporary location for **S.603,** as demonstrated in 3.2.4 concerning *Group 28,* and is most certainly not related either to the writing or to the binding of these manuscripts. It is evident that Egypt, as it is referred to in this note, is the dependency of the monastery of Saint Catherine in Cairo, which had very close relations with the monastery and a frequent exchange of manuscripts took place (Boudalis, 2004, p.153).

3. The scripts of the manuscripts **S.322** and possibly **S.441** are identified as of the "Regio" type, which according to palaeographers is dated approximately from

c.1200 to the mid-thirteenth century. This script is identified mainly in manuscripts deriving from South Italy.

4. The **British Library Royal 1a.xv** manuscript can be attributed with some reservations to South Italy, based on the following evidence:
    a) It is a bilingual Greek-Latin text.
    b) Palaeographic investigations based on the type of the Greek script support that it was most probably written in South Italy.[45]
    c) Not long after its completion (most probably after 1499) it was owned by the Venetian Matteo Dandolo, who is believed to have acquired numerous Greek manuscripts from Greek monasteries in South Italy.

5. The bindings were most certainly made between c.1522 – the date of some endleaf papers - and c.1570 when we have evidence that at least one manuscript arrived at the monastery of Saint Catherine.

It may be a coincidence that 1570 is also the year when Matteo Dandolo died. Soon after his death his collection was dispersed and a substantial part of it ended up in the Royal Library of the Escorial (Gregorio des Andrés 1966). The three bindings that were identified in the Royal Library of the Escorial as matching the Saint Catherine's bindings in decoration, which also have Matteo Dandolo as their previous owner, are indicative of the provenance of the ten bindings of this group. Lake (1904, p.197) identified twenty-three manuscripts from the Dandolo collection, now in the Escorial, including the three manuscripts mentioned above that have bindings that match our group. He confidently attributes these manuscripts to Greek scribes from Orthodox monasteries in Southern Italy, on account of their scribal style and palaeographic particularities[46]. Lake also stressed that this gives considerable weight to the argument that Matteo Dandolo acquired many of his manuscripts from South Italian monastic libraries, like many other collectors

[45] Personal communication with Agamemnon Tselikas, Head of the Historical and Paleographical Archive, of the National Bank of Greece Cultural Foundation, July 2008.
[46] Among many scribal characteristics that Lake believed link these twenty-three manuscripts, he also identified thirteen of these to be in the hand of the School of Nilus, which he describes as a prominent and clearly identifiable style of Greek calligraphy from Southern Italy.

of his time. That Greek manuscripts were written in the Greek Orthodox monastic communities of South Italy[47], is certainly acknowledged (see for example Lake 1914, Devresse 1955, Concasty 1953, Tselikas 2004), moreover four dated manuscripts in the library of Saint Catherine (**S.193, S.213, S.234,** and **S.401)** have been attributed to Greek scriptoria in Southern Italy (Harlfinger et al. 1983). The large majority of Greco-Italian manuscripts served later to support the large demand for Greek manuscripts of theological and classical texts by libraries and humanists of Venice, Rome, Florence, France and Spain. Because of this clientele, many new manuscripts continued to be copied as well. As a consequence of this dispersal of Greek manuscripts from southern Italy, many are now known to be in a variety of European libraries. However, although there is as yet an absolute lack of evidence about Greek bookbindings being made in the Orthodox monasteries of southern Italy, this does not mean that bookbinding was not carried out there. It would be unreasonable to suggest that such a prolific production of Greek manuscripts was not accompanied by a corresponding bookbinding activity. Any established scriptorium which would aim to produce a complete book either for its own library or to be sold would have had the means of providing a binding for its manuscripts, even if this might only be a temporary binding.

The evidence given supports two plausible hypotheses, either that the group of bindings discussed in this chapter are products of a bookbinding workshop in southern Italy, since three out of the ten manuscripts in this group were written there, or that they were bound elsewhere.

The Royal binding was most probably written in South Italy at the beginning of the sixteenth century and being still in its first binding, it is most likely that it would not have left Italy between the time it was completed by its scribe and was acquired before it was

[47] In the context of this thesis, Southern Italy is referred to as the parts of Italy where the presence of a Greek Orthodox Church and of Greek monastic establishments was preserved along with a large Greek-speaking population, at least until the end of the Byzantine Empire and up to the sixteenth century. Geographically, this includes mainly the areas of Calabria, South Lucania, Apulia and Sicily. To mention only a few Greek monasteries that have been identified as having a scriptorium within these regions are St Nicholas of Otranto, S.Maria of Patira, S.Maria de Carra, St Elias at Carbo, S.Salvator in Messina, St Nicholas of Casola and St Peter at Arena. The monastery of Santa Maria di Grottaferrata, near Rome, may exceptionally be added to this list of monasteries, particularly for the flourishing activity of its scriptorium and its long-lasting presence and contribution to the production of Greek manuscripts.

bound by Matteo Dandolo. We could suppose that a workshop based in Italy would have been responsible for its binding and consequently for the other manuscripts of this group, nevertheless executed by a Greek binder or by a binder who knew well how to bind books in the Greek style.

We should however not exclude the possibility that these manuscripts could have been bound elsewhere. Nine out of the ten bindings were rebound and therefore their link to a South Italian bindery is more difficult to prove. Only the Royal binding which is still in its first binding and which was written there is most likely from South Italy, on which the argument for a South Italian bookbinding workshop is mainly based. It may be the case however that :

a) the manuscript was written in South Italy and was soon taken to a place such as Crete or another place with an established Greek bookbinding practice to be bound, or that
b) a scribe who was trained to write in the South Italian Greek style wrote this manuscript in a place other than South Italy and that it was consequently bound there too. Crete could be such a place, as the style of the binding, particularly the endbands and the decoration, is often seen on Cretan bindings of the sixteenth century.

The latter two speculations present us with a series of historical uncertainties, as Matteo Dandolo's involvement with this manuscript is unquestionable. Because of the evidence presented we should consider two further possibilities; that Matteo Dandolo may have either:

a) procured his manuscripts from the same source in Southern Italy that already had them bound, therefore a bindery within a Greek monastery in Southern Italy appears plausible
b) procured his manuscripts from the same source in Crete, or other place where a Greek bookbinding workshop had them bound

c) he procured the manuscripts from one or more sources (including the monasteries from Southern Italy) and commissioned the binding of these manuscripts himself.

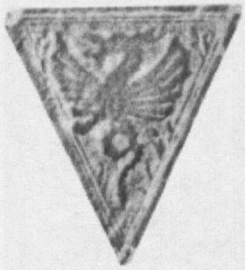
In the latter case it is reasonable to wonder why the nine bindings from the monastery of Saint Catherine omit Dandolo's usual signature and accession number, although they are similar in structure and decoration to the three Escorial bindings and the British Library Royal binding. It may mean that these nine bindings were never part of Dandolo's collection, and in fact there is no evidence to suggest that they ever where. Instead it is probable that even though they certainly derive from the same source as Dandolo's bindings, they probably followed a different route towards Sinai.

It still remains to find more evidence to prove whether the bookbindings have a South Italian origin or not. Although as current evidence stands this seems probable, more bindings that may be identified as belonging to this group would be useful.

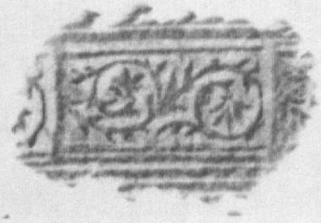
It is very likely that some of the answers could be found within the bindings and the manuscripts at the Royal library of the Escorial deriving from South Italian monasteries that have up to now not been investigated. This is a task that would require systematic research that was not possible to conduct within the scope of this thesis.

3.2.4 Group 28

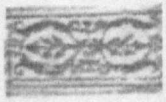
DECORATIVE TOOLS ON THE BINDINGS OF GROUP 28



Ha.dr04



Hf.fw21



Hf.fw76

Hf.fw80

Hf.fw75

Hf.rs30

Hf.st217

Hf.rs09

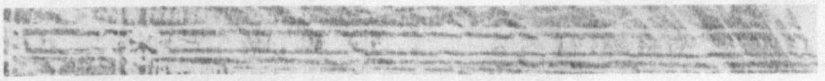
Hf.fe01

Hf.rs29

Ch.oh01

Hm.is02

Rf.fw68



(Full size rubbings)

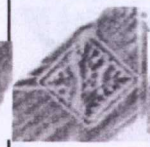
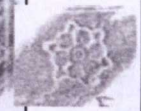
	Tool / Manuscript	1	2	3	4	5	6	7	8	9	10	11	12	13	14
															
		Ha.dr04	Hf.fw21	Hf.fw76	Hf.fw75	Hf.fw80	Hf.rs30	Hf.st217	Hf.rs09	Hf.fe01	Hf.rs29	Ch.oh01	Hm.is02	Rf.fw68	~
1	S. 87	x	x					x	x	x					
2	S. 352	x		x	x				x	x	x				
3	S. 418			x		x	x		x	x	x				x
4	S. 601	x		x	x				x		x				x
5	S. 622	x		x					x		x	x			x
6	S. 924	x		x			x		x						x
7	S. 940			x			x		x		x				x
8	S. 989			x	x		x				x				x
9	S. 1344	x						x	x				x	x	

Table 3.2. 11 - Correspondence of manuscripts and the tools used to decorate the bindings of Group 28

(Rubbings not in scale)

S.87


a


b

c


d


e

S.352


a


b

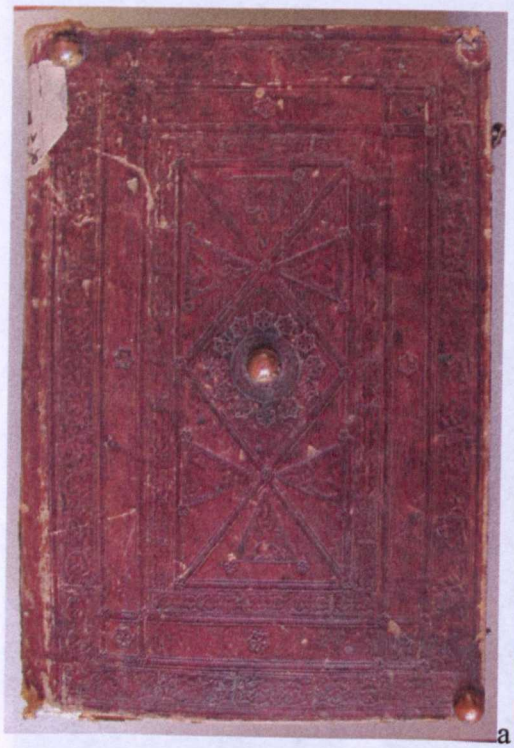
c


d


e

S.418

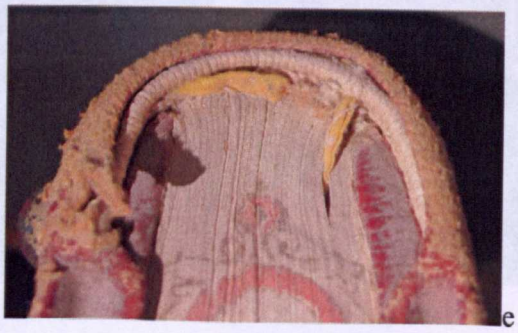
S.601


a

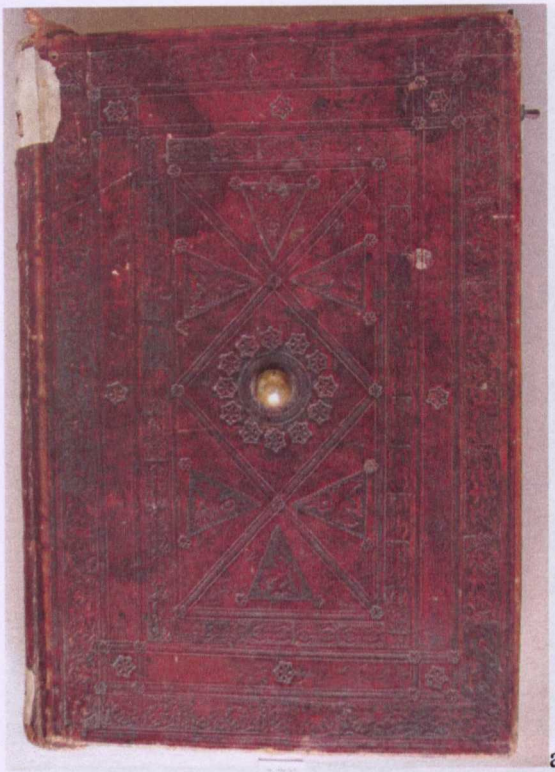

b

c

d


e

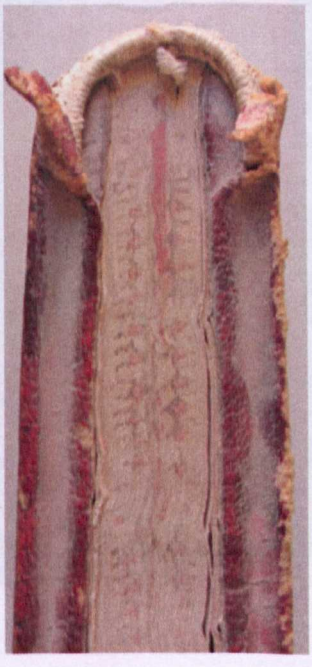
S.622


a


b

c


d


e

S.924


a


b

c


d


e

S.940


a


b

c


d

e

S.989


a

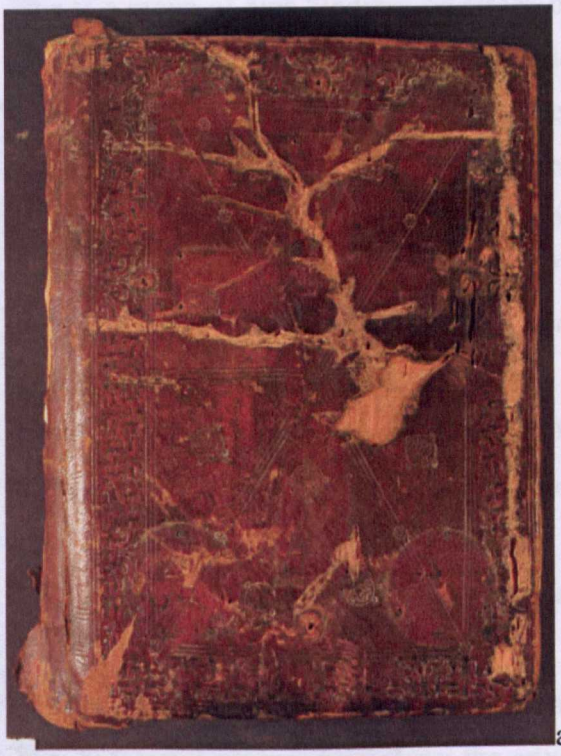

b

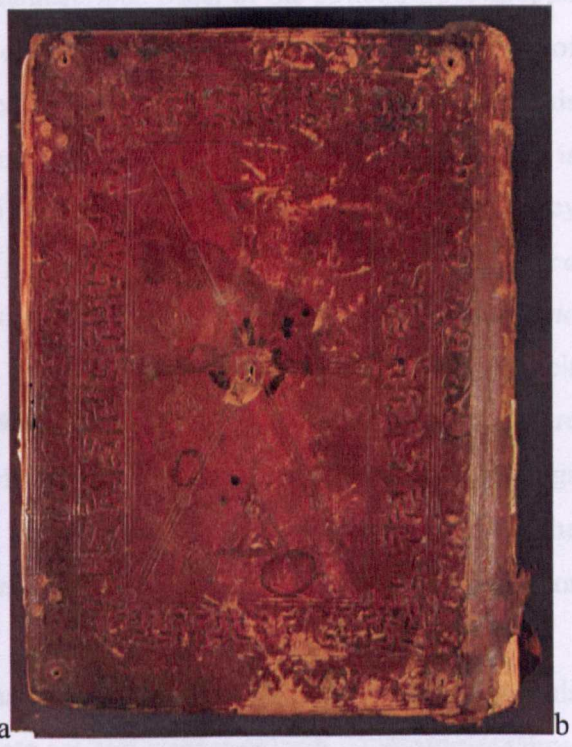
c


d


e

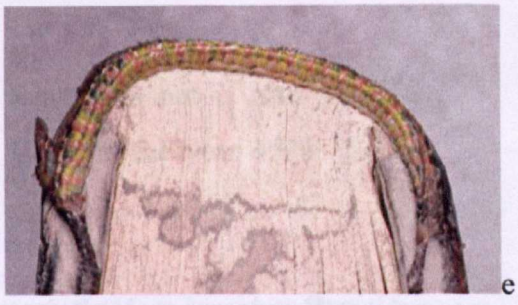
S.1344


a


b

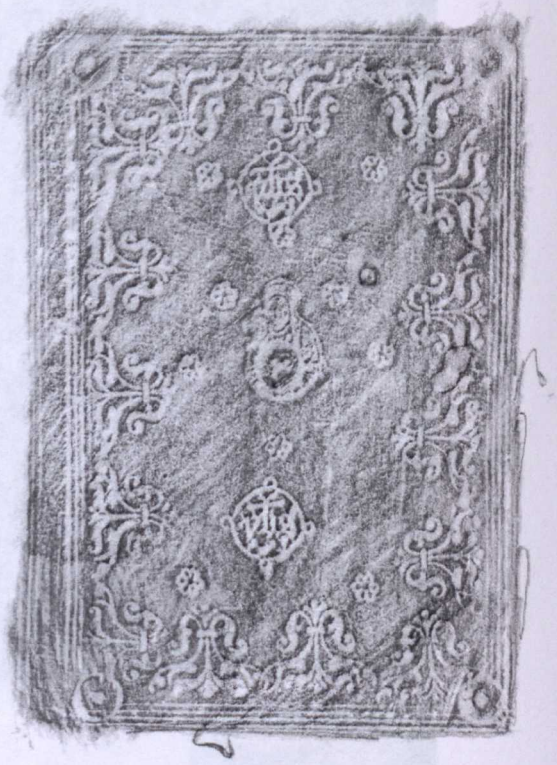

c


d


e

Ms.Benaki.70

Right board



Left board

3.2.4.1 Introduction

This is a group of nine bindings on Greek manuscripts. Most of the structural features of their bindings conform to the characteristics of Greek binding; however their style of decoration is distinct and is possibly linked to Italy, as will be discussed later in this chapter. The manuscripts themselves have a provenance that is related to Crete as is confirmed by scribal notes and provenance notes that are found in some of them. They contain texts of the *Old Testament* (**S.87**), *Sayings of the Fathers* (**S.352**), *Ascetica* (**S.418**), two *Menologia* (**S.601, S.622**), two Horologia (**S.924, S.0940**), one *Euchologio* (**S.989**) and one *New Testament* (**S.1344**). Seven bindings are contemporary with their textblocks, (**S.87, S.601, S.622, S.924, S.940, S.989, and S.1344**) three of which are securely dated between 1530 and 1565. Codicological evidence suggest that the bindings were also made approximately within this time-frame, and, as will be discussed in the course of this chapter, these bindings were most probably produced by a Cretan binder or group of binders.

One more binding of a Greek manuscript has been identified to match the bindings of this group. This is **Ms.Benaki.70,** from the private collection of the Benaki Museum, Athens. However, there are no inscriptions or other information about this manuscript that can contribute to our knowledge of this bookbinding workshop, and it was therefore not included in the examination of the group.

3.2.4.2 Paleographical Notes

Three of the manuscripts (**S.601, S.622** and **S.989**) have been signed by the same scribe, Thomas Patrologos, who most probably originated from Crete:

> **S.601** , f.243v: *"The present manuscript was completed by the hand of the sinful priest Thomas the so-called Patrologos. 1530, in the month of December, on Saturday, the 2nd."*[48]

Another manuscript, **S.440,** which is not in this group but is also signed by Thomas Patrologos, was written in Knossos, Crete in the year 1533. (Spanos,

[48] Ετελειώθει ο παρόν μην. Δια χειρός εμού αμαρτωλόν ιερεύς Θωμά του λεγομένου Πατρολόγου: αφλ (1530) μνός δεκεμβρίου εισ τασ ιβ ημέρασ [σαββατω;]

1998). From this it may be speculated that the scribe was a Cretan, or at least that he resided and wrote manuscripts in Crete.

On the same folio (f.243v) we find another note by a different hand:

> *"1570, October 22. I brought the present minaion, I Nyfos Keron the Cretan, from Egypt, indiktionos 13."*[49]

This is a note that we have encountered before in **S.603** from *Group 1* (3.2.1), **S.766** from *Group 30* (App.I 11) and also in **S.622** of this group. The date *22 October 1570* is mentioned in three notes (in S.766 it is dated 1563) and it appears that this monk, Nyfos the Cretan, brought to the monastery some manuscripts from Egypt, most probably referring to the dependency of the monastery in Cairo. How they arrived there and where exactly they came from is not clear. What is most probable however, about the manuscripts of this group is that they were neither written nor bound in the dependency in Cairo but were located there before Nyfos took them to the monastery. Another signed and dated note is found in **S.87:**

> f.263v: *"...A blessing of the holiest of monks, Makariou Litinou the Cretan, by the hand of monk Nikeforos Nathanael the Cretan, the present Psalter was written at Mount Sinai, in the year from the creation of the world 7073, from Lord Jesus Christ 1565, indiction 8th, the 12th of June. [...] Whoever reads this let him pray for both."*[50]

This note is particularly useful because it provides us with details regarding the place, the date and conditions of the writing of this manuscript. The Cretan connection of this manuscript is confirmed, yet not directly by being produced in Crete, but by being written by a Cretan scribe who was at the time a monk of Sinai. It was written in the monastery of Saint Catherine and commissioned by another Cretan monk, possibly from the Saint Catherine's monastic community too. The manuscript **S.940** includes two notes worth

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[49] η' τησ ημέρας 2.λ'οη (1570) οκτοβρίου κβ έφερα το παρόν μινέον εγώ νήφοσ [;] ο κρις από [;] εγίπιτου εν δικτίονως ιγ

[50] Θεώ συνεργήσαντι δόξα και κράτος. Αξιώσει μεν του οσιωτάτου εν μοναχοίς κυρ μακαρίου λιτίνου του κρητός, χειρί δέ νικηφόρου ναθαναήλου ιερομονάχου του κρητός, το παρόν εγράφη ψαλτήριον εν όρει σινά. είτει από μαν του αδάμ 7773, από δε του κυρίου ημών ιησού χρισού αφξε (1565), ινδικτίωνος η' , τη ικ' του ιουνίου μηνός. οιγο[;] κυ αναγινώσκοντες, εύχεσθε και υπέρ αμφοτέρων

mentioning, which give us information about the scribe, the date of its completion and possibly the provenance of this manuscript. The first note is in the colophon:

> f.429v: *"...The present book was finished in the month of September in 1531. Written by the hand of Maria Koursaropoula. May Glory be to God."*[51]
>
> f.8v: *"The present book, the so called thikaras*[52] *belongs to Athanasios the verger who is the current verger of the Holy Mount Sinai. He has the authority to do as he pleases with it without finding obstacles or disturbance or doubt from anyone, which he bought from the bursar Gerasimos from Crete. He also has the authority to sell it or give it away, as he wishes, witness to this the writer, and whoever wishes to steal this may he be unforgiven. Amen"*[53]

In the first note we see one of the rare examples of a woman working as a scribe of Greek manuscripts. It is certainly unlikely that such a manuscript would have been written at the exclusively male monastery of Saint Catherine.

The person mentioned as bursar in the second note, Gerasimos from Crete, is likely to have been the bursar in one of the monastery's dependencies in Crete.[54] It also possible that this Gerasimos is the same person who signed an ownership note on **S.375,** where he states that he brought the specific manuscript from the *economeion* of Crete (3.2.3).

Finally, in **S.989** there is a remembrance note mentioning the death of a *Father Ioannikios* on September 24th, 1554.

To summarize, the above notes testify for both the date and the origin of many of the manuscripts. Six of these are signed and dated by their scribe, by which their completion

---

[51] Ετελειώθη το παρόν βιβλίον κατά μήνα σεπτεμβρίο, κ' εις αφλα (1531). Γραφέν χειρί μαρίας της κουρσαροπούλας. Δόξα σοι ο Θεός."

[52] *Thikaras* is a book that contains hymns and prayers to the Virgin Mary that has been in use for centuries in the Orthodox Church. This book has been named after its author, Thomas or Theodoulos Thikaras (1282-1328) a rhetor and magistrate of the imperial court in Constantinople who was renowned also as a musician and composer of hymns.

[53] Το παρόν βιβλίω, ο επινομαζώμενος θικαράς υπάρχει αθανασίου κανδιλανάπτη του νύν καδιλαπτη του αγίου όρους σινά. καί ίνε εις την εξουσίαν του ως θέλη πιήσοι αυτώ και μή εύρι κατά τηνός εμπώδιω ή ενόχλησιν ή αμφιβολίαν το οποίω αγώρασε αυτό απέ τον οικονόμω κυρω γεράσιμον κρήτης. ή πολήσοι η χαρίσι έχει εξουσία ως ίδεν αυτός, εις αυτό κι ο γράψας μάρτυρας περί τούτου κι όποιος ίθελε κλέψη ή στερίσοι αξ αυτού να ίνε ασυγχώριτος ..αμήν.

[54] **S.2197,** (f.91r) a 17th century manuscript, contains a list of all the dependencies of the St Catherine's Monastery. Four dependencies are mentioned to have existed in Crete: St. Matthew in Handacas (Herakleion), Metochion of Spiliotissa in St Apostoles, Holy Trinity in Kidonia (Hania) and St George in Haroudia, with the dependency in Handakas being an important and very influential institution for the island and for the monastery (see Fragkouli, 1998), as it also functioned as a school of letters where great personalities of the time were taught.

and supposedly that of their bindings is placed between c.1530 and c.1565. One of these six manuscripts was written in the monastery of Saint Catherine. From four more notes we learn about the provenance or the travels of four manuscripts: one written by scribe Thomas Patrologos was probably written in Crete, one was bought by a monk of the monastery from another monk at a dependency in Crete, while the other two were brought to the monastery most probably from its dependency in Cairo.

3.2.4.3 Material and Structural Similarities

a) Endleaves

The first similarity which is observed with regard to the make-up of the endleaves of eight bindings from this group (**S.418** does not have endleaves), is that they have their outermost leaf pasted to the board. Nevertheless, **S.352** underwent recent restoration and a new pastedown was added. Four bindings have endleaves made of a separate quire of either six or eight folia. Two bindings have a different format, with two leaves only, hooked round and sewn with the textblock, while one leaf is pasted down to the board.

All endleaves in the eight bindings are made of western paper, and watermarks were found in all of them. In three bindings **(S.601, S.622, S.940)** the watermarks are identical, indicating the use of the same paper. These are a) a *balance in a circle* which it was not possible to identify with published watermarks and b) an *anchor* which is similar to Piccard 119098, **Verona, 1516**. In **S.352** we find a watermark of a *clerical hat*, identified with Piccard 032155, **Gemona, 1517,** and in **S.1344** an *anchor* watermark that matches Piccard's 119045, **Trient 1577.**

Below is a summary of the manuscript dates, the endleaf paper dates discussed here and possible binding dates derived from the combination of the above evidence.

MSS	S.87	S.352	S.418	S.601	S.622	S.924	S.940	S.989	S.1344
MS Date	1565	1320	12th c.	1530	~1530	16th c.	1531	c.1530 to 1554	16th c.
Endleaves Date	-	1517	-	1516	1516	-	1516	-	1577
Possible Binding Date	c.1565	After 1517	NK	c. 1530	c.1530	16th c.	After c.1531	c.1530 to 1554	c.1577?

Table 3.2.12- Summary of possible binding dates

b) Sewing

The nine textblocks have been sewn with an unsupported link stitch. Visual access to the spine was limited and it was therefore not possible to determine the sequence of sewing apart for **S.418** that has recently undergone conservation treatment[55]. During this process the textile lining and leather cover were lifted, revealing the double-sequence sewing[56] of the textblock. The first stations were re-used on the re-sewn manuscripts (**S.352** and **S.418** on 4 stations). Six of the bindings were sewn on 4 stations and three on five stations, arranged, as can be seen in fig.124, in a similar pattern.

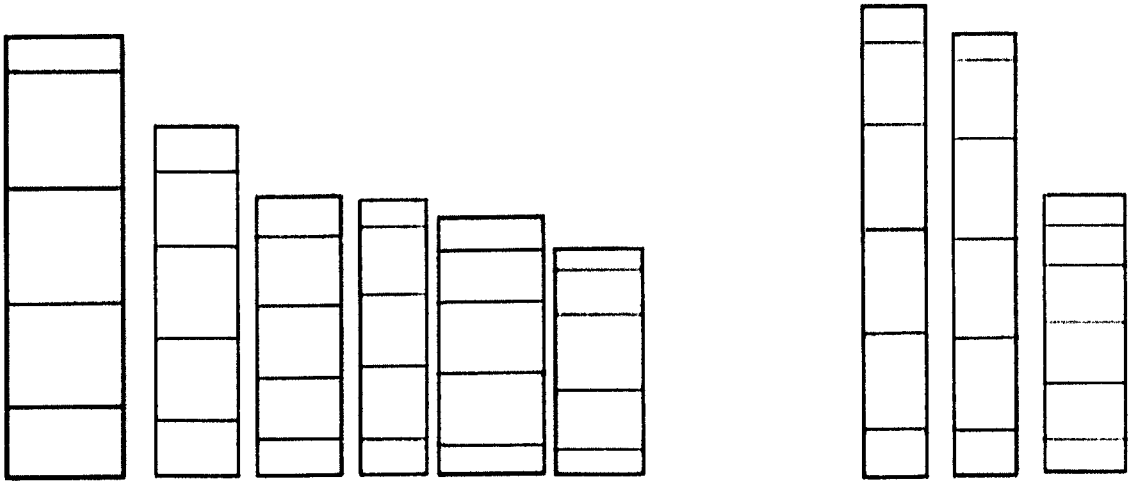

Figure 124 - Sewing station arrangement of the bindings in Group 28 (from left to right): S.352, S.1344, S.940, S.989, S.418 and S.924 on four stations and S.601, S.622 and S.87 on five stations

Three types of thread were used: a), a medium thickness S-ply with a loose twist (**S.87, S.1344**) b), a medium thickness S-ply with a medium twist (**S.352, S.601, S.924, S.940**) and c) a thin S-ply, with a tight twist (**S.418, S.622, S.989**). As it was not possible to carry out microscopic fibre analysis within the scope of this research, these observations about the identical nature of the threads are based on visual examination only.

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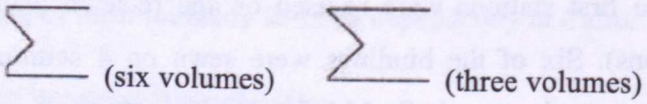
[55] Prof. Nicholas Pickwoad and Mr. Andrew Honey who carried out the conservation treatments of this manuscript in 2006 produced detailed photographic documentation that was made available for this research.

[56] "The (double-sequence textblock) sewing is executed in two separate sequences, starting from each board, which results in two separate halves. The halves are then joined by sewing them together in separate operation." (Pickwoad, 2003)

c) Boards

All nine bindings have wooden boards with a vertical grain direction (head to tail). Five are described as softwood, two as hardwood and in two bindings the boards were entirely covered and could not be identified.

Their board edges are grooved according to the following two types:



Unfortunately the board attachments were visible in only three bindings, and although these were of a similar type (see fig.125), it was not considered sufficient evidence on which to base the similarity of the bindings.

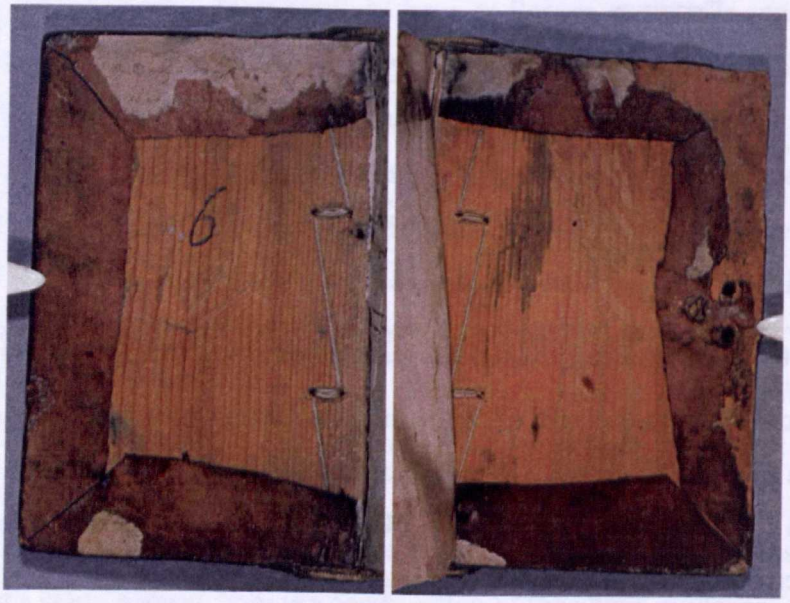


Figure 125 - The board attachment sewing on both boards of S.924

d) Endbands

Similar Greek two-core primary endbands are found in all the bindings. These are sewn around thick cords and into the wooden boards in the typical Greek manner, except for **S.989,** which has single-core primary endbands with a two-colour secondary sewing with a front bead and **S.1344** which has a compound endband with a crowning core and a front bead. It is in fact curious to see this type of endband on bindings dating from as early as

the mid-sixteenth century, since these are known to appear in Greek bindings mainly after the first half of the seventeenth century.[57] The bindings of **S.87** and **S.352** have Greek endbands with a secondary sewing that is similar in structure, with woven chevrons on warps; however the colours and threads used are different for both. **S.87** has blue, yellow and white threads, with the white thread used as an intermediate band running horizontally in the middle of the endband, in between the alternating blue and yellow chevron bands. In **S.352,** red and green silk threads are woven on green warps.

The endbands in **S.418** (fig.126) are of exceptional quality and stand out from the rest of the endbands in this group. The primary endband is a typical Greek double-core, while the secondary sewing is made with twisted silver and silver-gilt threads with green silk-thread warps threaded through them and around the primary sewing, a technique which is not very common when metal threads are being used (Boudalis 2007). According to Boudalis, endbands made with metal threads in the Greek bookbinding tradition are more often associated with treasure bindings or books covered in luxurious textiles, and to find one on a leather-covered binding is rare.

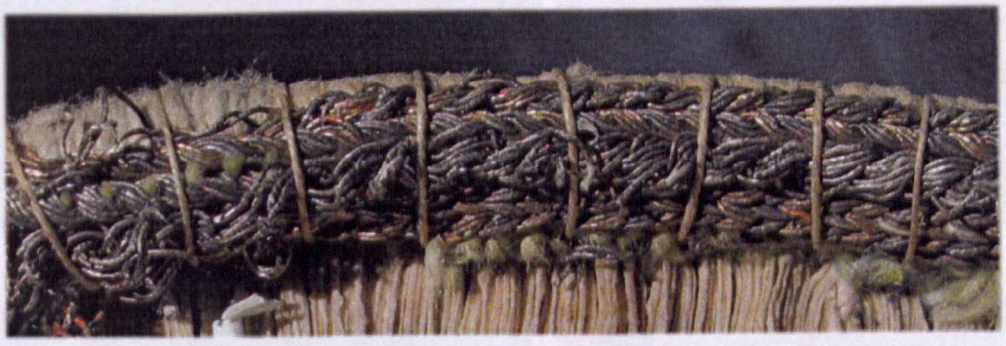


Figure 126 - S.418 headband (after conservation treatment)

e) Covering

In six bindings the covering material is bright red goat-skin leather of a similar hue, and in three bindings of a mid-brown hue. The turn-ins are mostly butt-mitered (six bindings), one is open-mitered (**S.87**), one has one board with butt-mitered corners and the other

[57] Personal communication with Dr George Boudalis. Senior book conservator at the Byzantine Museum in Thessaloniki and researcher of Greek-Byzantine bookbinding.

with lapped corners at the head and tail (**S.989**), while on **S.352** this detail was obscured by restoration work.

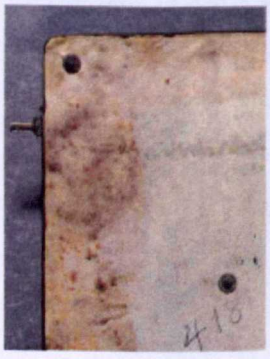
f) Furniture and Fastenings

Seven out of the nine bindings have either still surviving, or evidence of, hemispherical bosses on both boards (fig.127). Their arrangement is identical, one at each of the four corners and one in the centre. Copper alloy bosses were attached to **S.87, S.601, S.622, S.940** and **S.989**.

Figure 127 - A boss from S.87

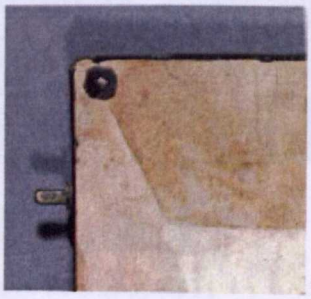
In **S.1344** all of the bosses have been lost, but nail-holes and impression marks clearly indicate that it originally had bosses. **S.418** has more luxurious silver instead of copper alloy bosses.

In three bindings (**S.418, S.940** and **S.989**) the nail ends of the bosses are fastened on the inner side of the boards through small metal washers of a similar type, yet of different shapes (fig.128)



S.418

S.940



S.989

Figure 128 - Metal washers on the inner side of the boards, securing the ends of nails from bosses.

The few intact fastenings that have survived from the nine bindings consist of the same components. Triple interlaced leather straps with metal stirrup rings survive on three bindings (copper alloy in **S.87** and **S.601** and silver in **S.418**), fastening onto metal edge pins (copper alloy in **S.601, S.622, S.940** and **S.989** and silver in **S.418**)

g) Textblock edge-decoration

The painted edge-decoration on these manuscripts have a similar pattern to that seen and discussed for the manuscripts in *Group 1* (Chapter 3.2.3), representing rings linked by interlace ropes or chains, a common Cretan decorative style identified with Greek bindings of the fifteenth and sixteenth centuries (Regemorter, 1967 p.125). Nevertheless, within this group of nine manuscripts the decorations are not as consistent in style as might be expected. Only in two pairs of manuscripts could it be said with some confidence that the same hand must have drawn these, **S.87** with **S.1344** and **S.418** with **S.940** (Table 3.2.13).

The same cannot be said for the other five manuscripts, which do not show similarities between them strong enough to link them. It is a possibility of course that the edge decorations were not executed as part of the binding process of these manuscripts but were added at different periods by different hands.

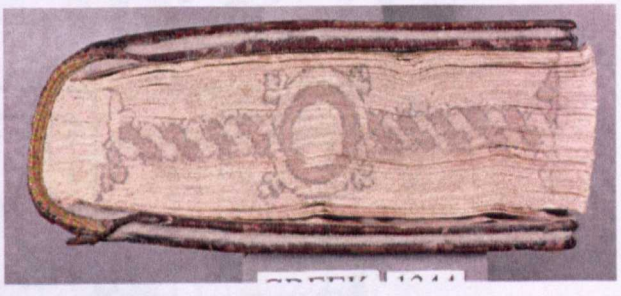
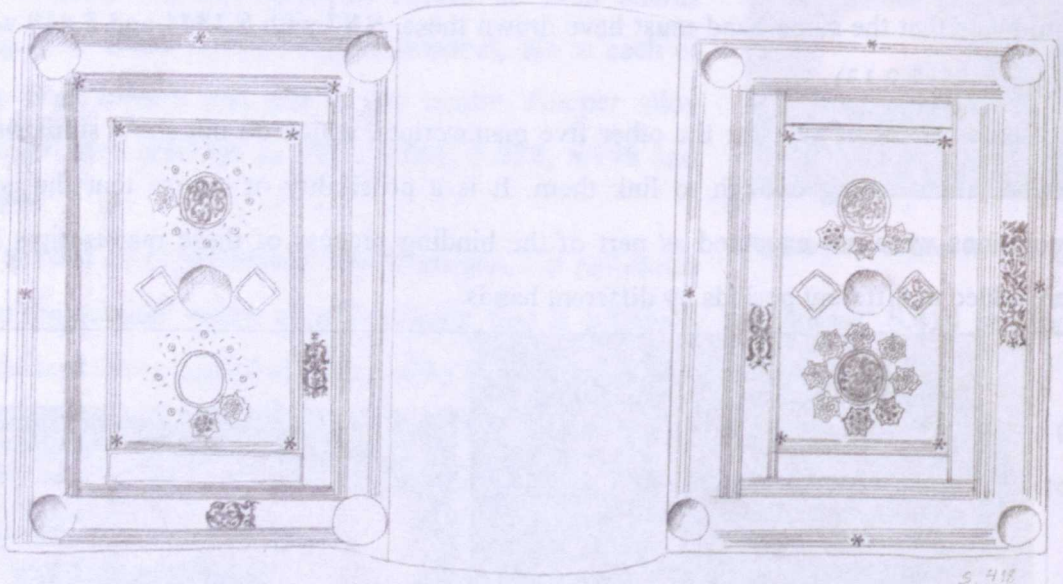
A	 S.87	 S.1344
B	 S.418	 S.940

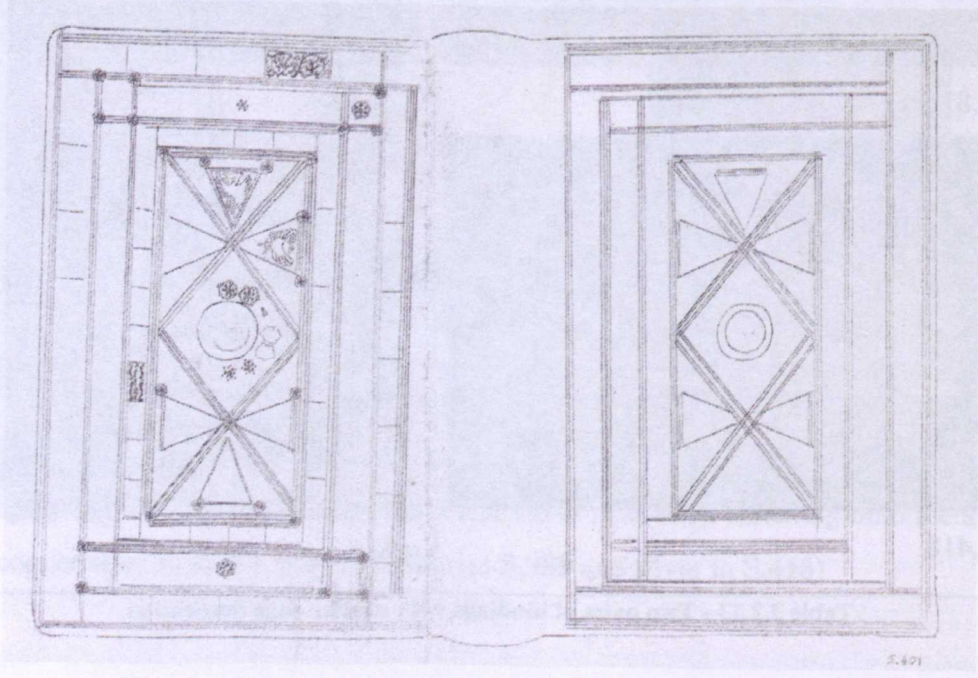
Table 3.2.13 - Two pairs of bindings with similar edge decoration

3.2.4.4 Decoration

a) Decorative layout of the covers

Regardless of the fact that the nine bindings all share a number of tools, it is surprising to see the number of different ways in which these have been arranged on the covers of the books they decorate. In most cases, five patterns have been observed on a total of 18 boards with decoration, although some small variations within these patterns may appear.





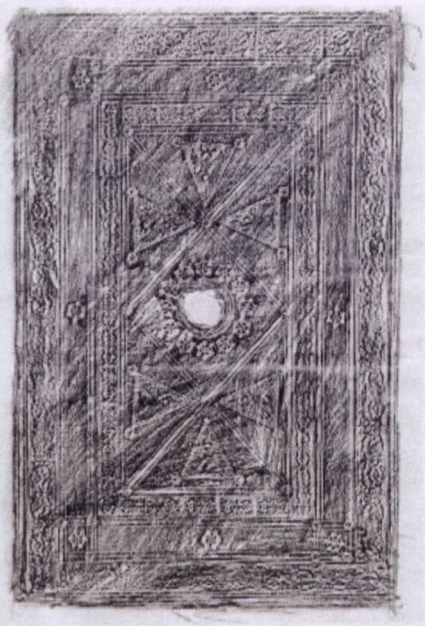
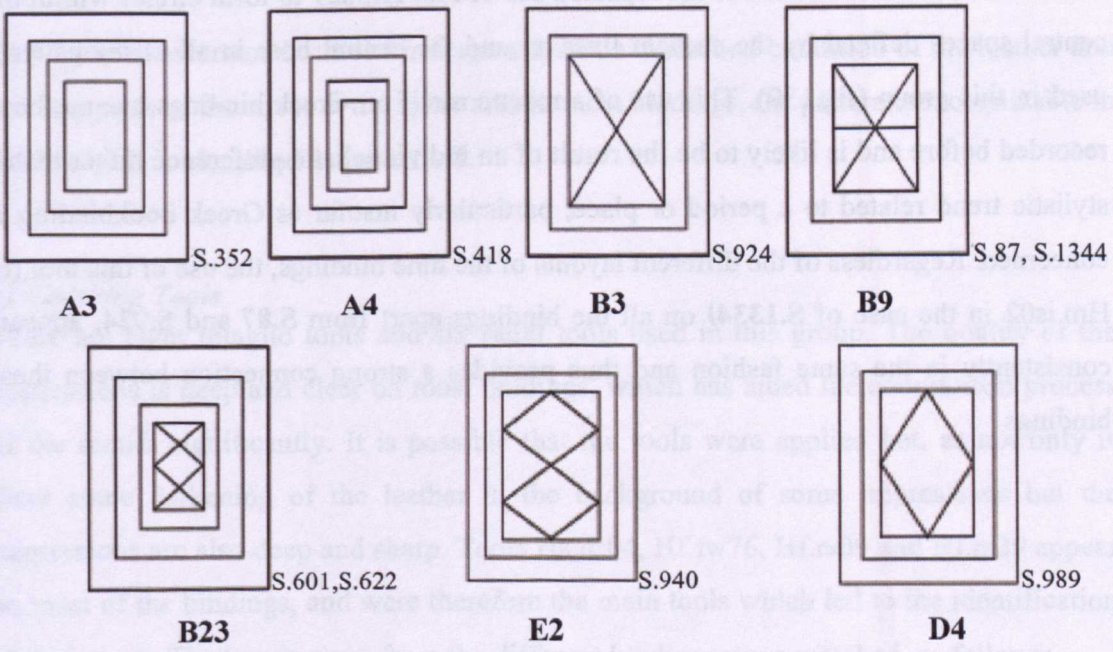


Figure 129 - The drawings of the decorative layouts of S.418, S.601 and a rubbing of S.622 (top to bottom)

The left and right board pattern is the same for all nine bindings. They are summarized below:

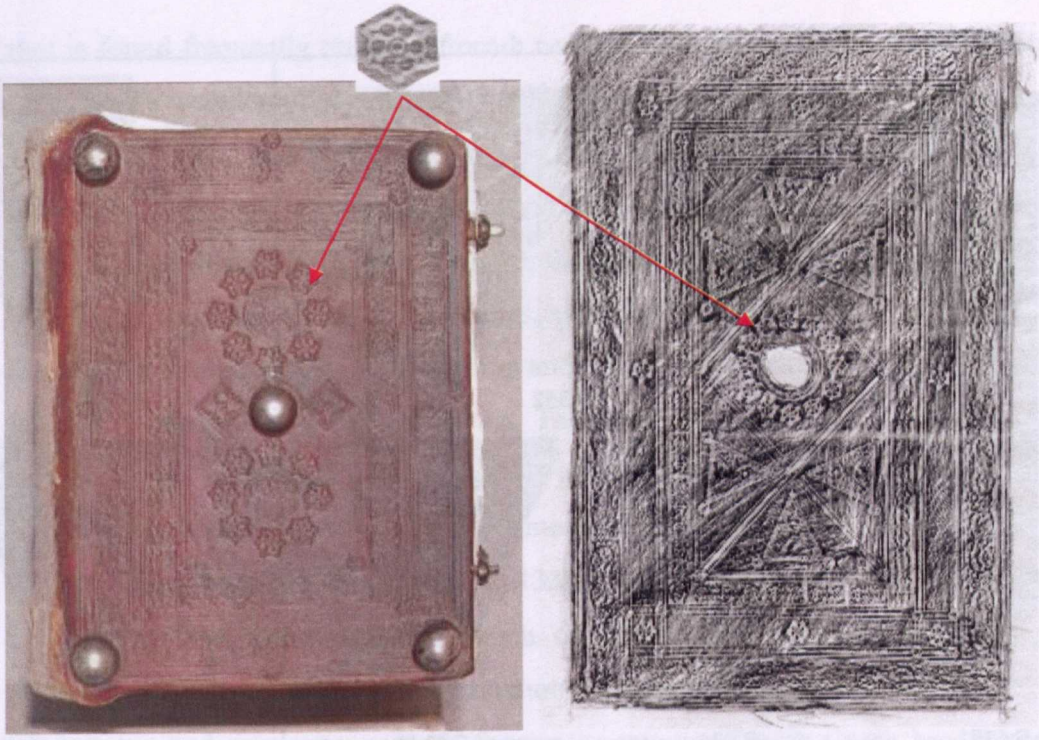


MSS	S.87	S.352	S.418	S.601	S.622	S.924	S.940	S.989	S.1344
Layout pattern	B9	A4	A3	B23	B23	B3	E2	D4	B9

Patterns A3, A4, B3 and B9 are frequently associated with the layout of decoration on Greek bindings[58], but also with that of western European bindings. D4 is of a western inspiration, and is a pattern that is seen often on Italian bindings of the sixteenth century, but probably more often on German, Dutch and English bindings.[59] This pattern appears also on a few bindings from the *"Klimis"* workshop (Boudalis, 2004, p.99) and on four bindings of *Group* 49 (3.2.5), both of which workshops produced bindings in Italianate styles. However, they also appear on three bindings of the *"Antioch"* workshop (Boudalis, 2004, pp.82-83), which are probably the earliest examples of this pattern on Greek bindings. Most interesting though, are patterns B23 and E2. B23 has not been encountered before on Greek bindings, while E2 has only been recorded on two *"Klimis"* bindings so far (**S.420** and **S.604** in Boudalis, 2004, p.103). However, both of these patterns have been recorded on numerous western bindings, some of them originating from France (Gid, 1984, p.69 – *Schema 50*). There is a suggestion of a personalized style in these patterns, and this is reflected in the way that certain tools have been employed. The distinctive characteristic is the repeated use of tool Hf.rs29 to form circles within the central spaces defined by the straight lines around the central boss in all of the patterns used in this group (fig.130). This use of a rosette motif on Greek bindings has not been recorded before and is likely to be the result of an individualistic preference rather than a stylistic trend related to a period or place, particularly insofar as Greek bookbinding is concerned. Regardless of the different layouts of the nine bindings, the use of this tool (or Hm.is02 in the case of **S.1334**) on all the bindings apart from **S.87** and **S.924**, appears consistently in the same fashion and thus provides a strong connection between these bindings

[58] These patterns are mentioned by Federici & Houlis, 1989, as 4 out of the 11 most common patterns on the Greek decorated bindings of the Vatican library.

[59] See for example *Hand Bookbindings*, (2007), on-line bookbinding catalogue, Princeton University Library: binding **BS1515 .T56 1531** and personal communication with Mirjam Foot.21.04.2008



S.418 S.622

Figure 130 - The characteristic use of the rosette tool 10 (Hf.rs29)

The spine is decorated in three bindings only. Due to the bad condition of the leather and missing parts of the cover at the spine area in most bindings, the pattern is recognizable in **S.87** only. It is identified as pattern d3.

b) Finishing Tools

There are eight intaglio tools and six relief tools used in this group. The quality of the impressions is deep and clear on most bindings, which has aided the comparison process of the motifs significantly. It is possible that the tools were applied hot, as not only is there some darkening of the leather in the background of some impressions but the impressions are also deep and sharp. Tools Ha.dr04, Hf.fw76, Hf.rs09 and Hf.rs29 appear on most of the bindings, and were therefore the main tools which led to the identification of this group. The impressions from the different bindings were matched, as follows:

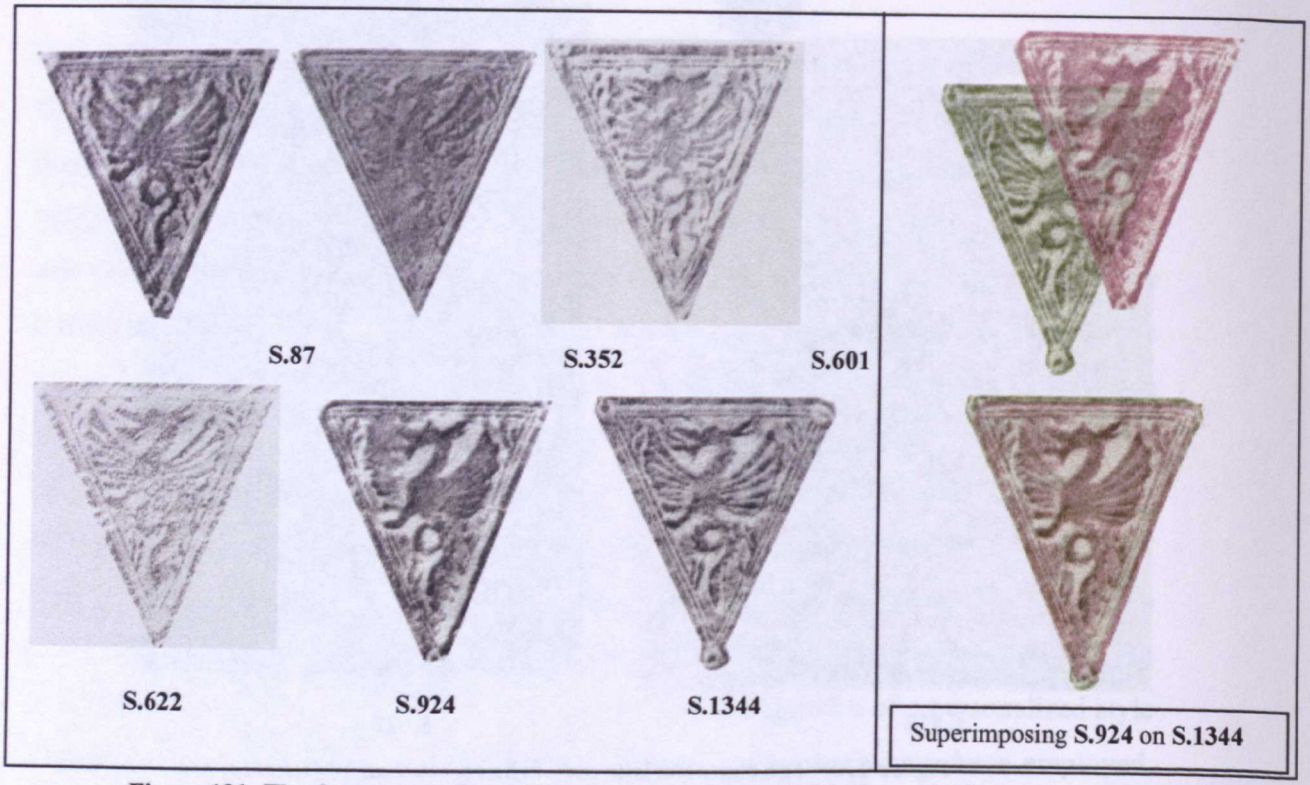


Figure 131- The dragon tool (Ha.dr04) as compared from six bindings of this group

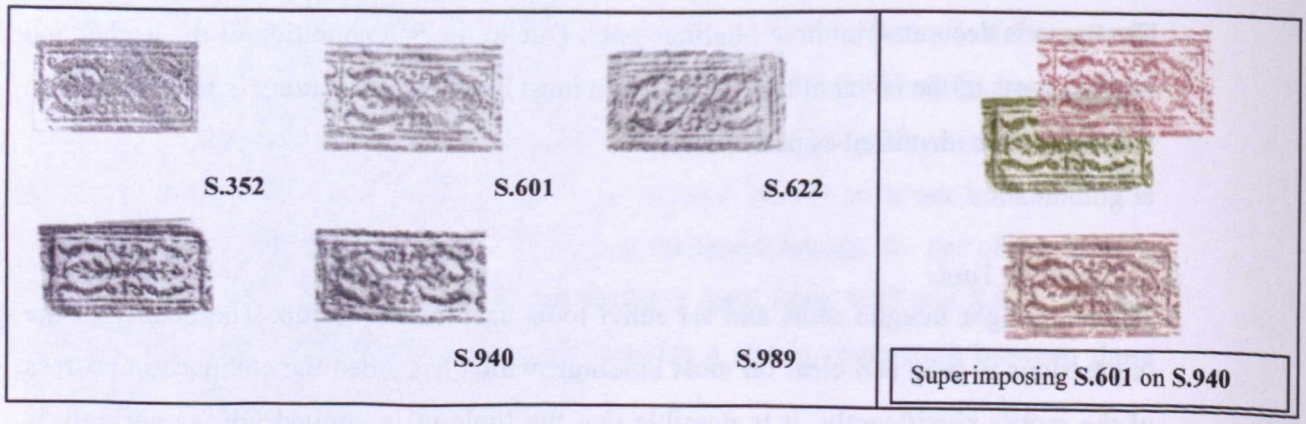


Figure 132- Tool Hf.fw76 as compared from five bindings of this group

Five tools appear on more than six bindings and the rest of them on between one binding (five tools) and four bindings (one tool). Hf.rs29, as was discussed above, formed a fundamental part in the layout of the decoration on six bindings. It is, however, a motif

that is found frequently on late fifteenth century western bindings[60].The majority of the tools have a western influence or are clearly of a western origin. Hf.st217 is an arabesque motif of a type appearing on Italian bindings of the sixteenth century[61]. It also appears on three other bindings from Saint Catherine's monastery[62] which are discussed in App.II 12 for *Group 41*, that date to the 1540s. Rf.fw68 is confined to western bindings, with the exception of the Greek bindings **S.1344** of this group and **S.427** which is also discussed in App.II 12 for *Group 41*. The inscription *"IHS"* (Hm.is02) is a Latin Christogram common in the west, similar in style to corresponding tools with the same inscription from the fifteenth and sixteenth centuries (fig.133). The dragon tool, Ha.dr04, is also a tool not uncommon on Western bindings although it was one of the motifs commonly adopted by Greek binders too and represents a motif frequently associated with Greek bindings made in Crete and Italy, as was discussed in *Group 1* (Chapter 3.2.3.4). Another tool worth mentioning is Ch.oh01 found on **S.1344,** a circular small centre-piece that possibly depicts a man holding a sword, with a band border bearing an illegible inscription, a tool that may have a western origin as no similar tools have been recorded before on Greek bindings. Finally, a multi-line tool (creaser or fillet) that consists of three parallel lines with the middle line being considerably wider than those on either side is used on six bindings. Such three-line tools are unusual in Greek binding decoration, where plain thin lines of the same thickness in combinations of two, three or four lines are more frequently observed. Instead, they are particularly common in Europe during the fifteenth and sixteenth centuries.[63] However, it is not safe to assume that these multi-lines have been executed with the same tool, as these are impressions that could derive from similar, yet not identical tools that would be difficult to differentiate between them.

Figure 133- IHS tool from an Italian binding, end of the 15th c. (EDBD s030604)

[60] By way of comparison,, similar tools can be found on EBDB s019128 (on 1475-84 bindings), EBDB s014702 (1466-84 from a German workshop), Gid 1984 - fle17

[61] A similar motif, yet not identical, is found on a sixteenth century binding from Venice in De Marinis (1960) - Vol.2, binding 2300, pl.C54.

[62] S.427, S.2102 and S.2106 of *Group 41*.

[63] Personal communication with Prof. Nicholas Pickwoad, 04.02.2010

The origins of the tools in this group are not known. Tools Hf.fw21, Hf.fw76, Hf.fw75, Hf.fw80, Hf.rs30 and Hf.fe01 present some stylistic similarities, such as the border lines that are engraved only at the top and bottom side of the rectangular tool and the depth and detail in the engraving of the leaves and the branches in all six tools. These similarities are interesting and it is possible that these tools were produced by the same engraver, although there is far from enough evidence to support this; nevertheless even if this was the case, his location would still remain unknown. Particularly useful links have been identified by the examination of Hf.st217 and Hm.is02. Hf.st217 is a tool that appears also on the bindings of Saint Catherine manuscripts **S.427, S.2102** and **S.2106** of *Group 41.* Hm.is02 appears also on **S.427.** These manuscripts are identified as belonging to a group of bindings that were most possibly made in Crete c.1544 and it is apparent that the workshop responsible for making the bindings of this group had links with the Cretan workshop of *Group 41.*

3.2.4.5 Conclusions

This group of bindings presents two contradictory types of evidence. On the one hand there is a homogenous set of decorative tools, along with a number of common materials and techniques used on the bindings, such as the type of leather, the metal bosses, the format of the endleaves and the paper used as endleaves, while on the other hand there are some inconsistent features such the variety of decorative layouts and the different secondary endband sewing. The latter may suggest that perhaps a number of different craftsmen bound these manuscripts or that they reflect different level of costs of the bindings. If it were to be assumed that different binders worked for parts of or for the entire process of binding these manuscripts, it is still safe to suggest that these binders worked closely together and most probably within the same workshop.

In an attempt to locate where this workshop might have existed, all the available information must be assessed, and this includes:

1. A number of the manuscripts of this group have come from outside the monastery, since monk Nyfos has left notes which mention that he brought them to the monastery from Egypt. A few of them are also related to Cretan scribes, such as Thomas Patrologos who wrote **S.601, S.622** and **S.989.** Moreover **S.940** was certainly bought in Crete, from the bursar of the dependency of the monastery.

2. Certain Cretan bookbinding characteristics are prominent in the majority of these bindings, such as the Cretan compound endbands with secondary chevron sewing and the textblock edge decoration.

3. Tools Hf.st217 and Hm.is02 appear on three bindings from *Group 41* that date c.1544, a group which is very likely to have a Cretan provenance (see further details in App.II 12). However, the bindings of *Group 41* are structurally different from those presented in this chapter. It is reasonable to suggest that both *Group 28* and *Group 41* were produced within the same area/workshop, but by different binders who had the same finishing tools at their disposal around the same period.

4. The majority of the tools encountered have motifs of clearly Italian inspiration and the same can be said for the layouts in which these are arranged.

5. The note in **S.87** not only indicates where and when the manuscript was written but also denotes a strong Cretan element. It was commissioned by a Cretan and written by another Cretan, in a binding whose style of tooled decoration, textblock-edge decoration and endband structure also strongly suggest a Cretan link.

This evidence confirms the location of this workshop, as well as giving some information about certain manuscripts:

a) The bindings of this group were most probably made in Crete. The number of Cretan scribes is indicative, and together with the Cretan binding characteristics, the Italianate tools and layouts are evidence that point to a Cretan origin.

b) The tools Hf.st217 and Hm.is02 were used along with this workshop by another workshop of Cretan provenance (*Group 41*)

c) The manuscript **S.940** was written at the monastery of Saint Catherine in 1565 by a monk of the monastery. It would appear that this manuscript left the monastery following its completion to go to Crete and be bound there. The person who commissioned the work signs himself as monk Makarios Litinou the Cretan and it would not be unlikely that he ordered the manuscript in order to take it with him to Crete, or even that he only arranged for it to be bound there. This type of evidence ties in with a general observation regarding bookbinding at the monastery in the sixteenth century, when, apart from the productive workshop of *"Klimis"- Group 30* (App.I 11), was at a low ebb at this period (see 4.1.1.1), and a significant amount of bookbindings imported from Crete.

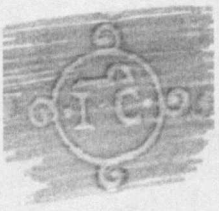
Following this line of evidence, there is more that can be said about the provenance of some of the manuscripts in this group. **S.601** and **S.622** were brought to the monastery in 1570 by monk Nyfos. The origin of their scribe, Thomas Patrologos is not entirely confirmed, however the note in **S.440** points towards Crete. It is most likely that their route following their completion and binding included the dependencies of the monastery, in both Crete and Egypt. Judging from the close relations between the monastery and its dependency in Cairo and the circulation of books that is known to have existed between these two places (Boudalis, 2004, p.153) this is perhaps a plausible hypothesis.

Before concluding, it is worth stressing another point. The quality of these bindings, as seen through details of their execution and the accurate arrangement of the blind-tooled decoration, shows a high level of craftsmanship. However, the binding of **S.418** stands out prominently from other bindings which are known to have been produced in the monastery and which have been investigated so far from the Saint Catherine's collection, of either local bindings or imported and it is worth some additional attention. It is the only manuscript in this group to be illuminated, denoting a manuscript of exceptional

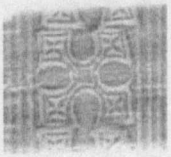
value. Unlike the other bindings of this group **S.418,** is embellished with bosses, edge pins and stirrup-ring fastenings made of silver instead of the more common and cheaper copper alloy. Instead of the silk thread which was often used for working the secondary endband sewing, silver and silver-gilt threads were used on this binding. It is clear that the binding is not contemporary with its twelfth century parchment textblock, but the quality of this manuscript seems to have been particularly appreciated by this binder, as he devoted to it the best materials and outstanding craftsmanship. What is more, it proves that the level of bookbinding in Crete was of an exceptionally high standard, a fact that confirms once more how Crete was indeed one of the greatest centres of book production, capable of producing bindings at the highest end of the market, and possibly equal to Venice and Constantinople.

3.2.5 Group 49

Decorative Tools on the Bindings of Group 49



Hm.is01

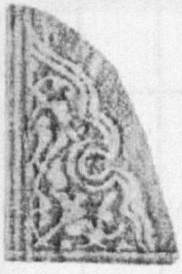


Hg.cr01

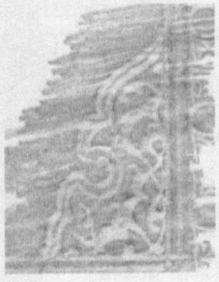
Hf.fw120

Hf.fl15

Hf.st10



Lo.ao03a



Lo.ao03b

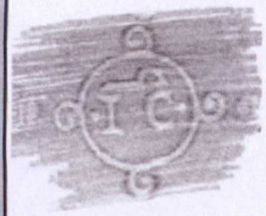
	Tool / Manuscript	1 	2 	3 	4 	5 	6 	7 
		Hm.is01	Hg.cr01	Lo.ao03a	Lo.ao03b	Hf.fw120	Hf.fl15	Hf.st10
1	S. 0101		x					
2	S. 0330		x				x	x
3	S. 0331	x	x	x	x	x	x	
4	S. 1607	x	x					x
5	S.Pr.124	x	x	x	x		x	
6	S.Pr.128	x	x	x	x		x	

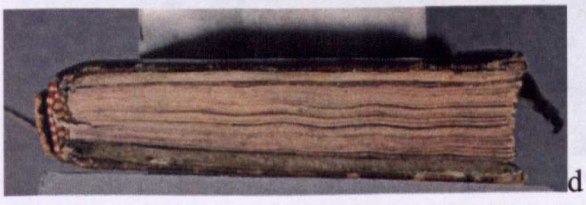
Table 3.2.14 - Correspondence of manuscripts and the tools used to decorate their bindings

S.101


a


b

c


d (head)

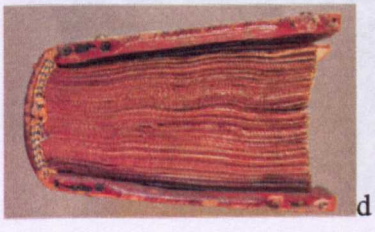

e

S.330


a


b

c


d (tail)


e

S.331


a


b

c


d (tail)

e

S.1607


a


b


c

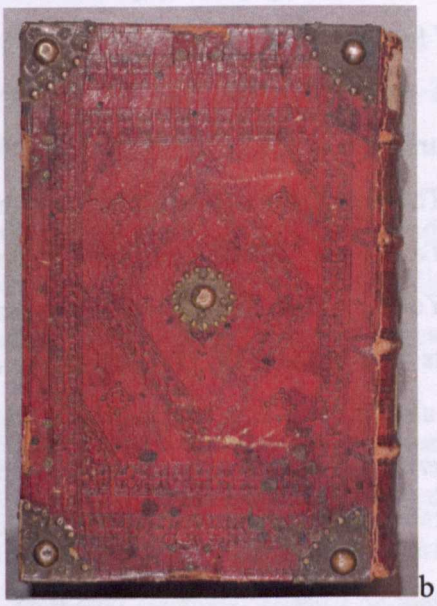

d


e

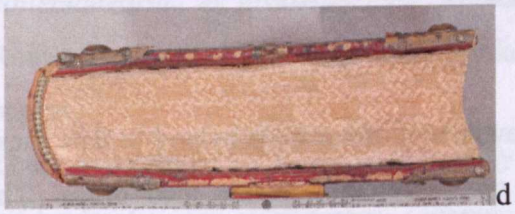

f

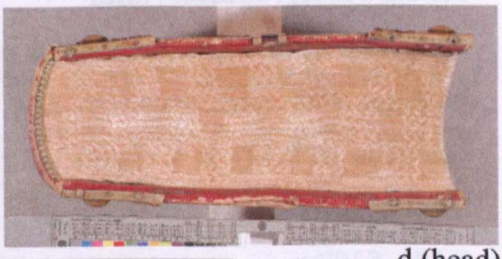
S.Pr.124


a


b

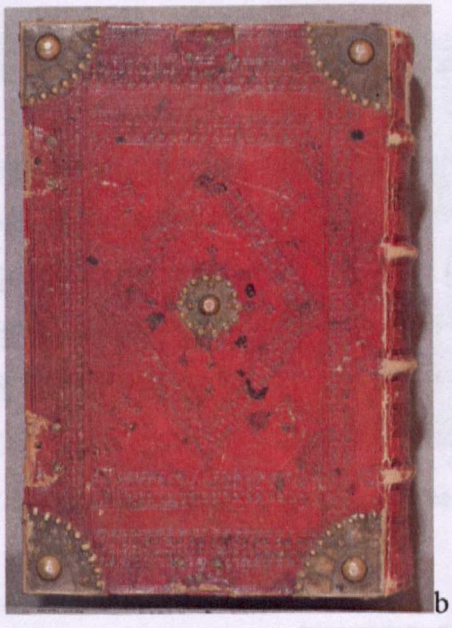

c


d (head)


d (head)

S.Pr.128


a


b


c

3.2.5.1 Introduction

This is a group of four bindings on manuscripts and two bindings on printed books from the monastery of Saint Catherine, which, based on their decorative and structural similarities, are attributed to the work of one bookbinding workshop that most probably worked in Crete. The texts of the manuscripts and the printed books are all in Greek and include one *Old Testament* (**S.101**) and three books of *Sayings of the Fathers* (**S.330, S.331, S.1607**). Yet the style of their binding and decoration is Italian. Only one manuscript is in its first binding (**S.331**), while the other three have been rebound. The printed books are also in their first and original bindings, a feature that has been useful for providing a *terminus ante quem* to these bindings and which helps to date the bookbinding workshop responsible for these bindings to the middle of the sixteenth century.

3.2.5.2 Paleographical Notes

A number of inscription, colophon notes and ownership notes have helped to date these bindings with some accuracy. Few, however are useful for locating their origin. The colophon in **S.101** is a significant note, which gives us a *terminus post quem* for the binding.

S.101, f.109v:

> *"Written by myself, monk Gregory, in the year 1534"*[64]

Below this note there is an ownership note by archbishop Ioasaph of the Monastery of St Catherine's (1617-1661), which evidently is much later than the date of the binding.

On **S.331** we find two inscriptions, one in Greek and one in Italian in the same ink and probably by the same hand. The latin hand, however, does not appear as confident as is the Greek and we may suppose that it is the hand of a Greek that wrote both of these notes:

left endleaves:

[64] «Εγράφη παρ'εμού Γρηγορίου ιερομονάχου, εν έτη ζμβ' (1534)»

"Father Kontozmanos left to Venice [?] with [?]"[65]

and below:

"On 17 of June in the [?] of [?] in Candia and [?] in Grand Cairo for work for the grand Council of Mount Sinai"[66]

S.1607 has two notes, a colophon dating the manuscript to 1431 and an ownership note from 1640, neither of which are near to the estimated date of the binding.

Most useful evidence is to be found on the title and colophon pages of the two printed books.

S.Pr.124 is an edition of *Eusebii Pamphili Evangelicæ demonstrationis lib.X: ex bibliotheca regia*, Paris: Robert Estienne 1544, and **S.Pr.128** is a *Ecclesiasticæ Historiæ Eusebii Pamphili (eiusdem de vita Constantini), Socratis, Theodoriti episcopi Cyrensis, collectaneorum ex historia eccles. Theodori Lectoris, Hermii Sozomeni, Evagrii.* Paris: Robert Estienne, 1544. Both these books, printed by Robert Estienne, are on identical papers.

These two printed books are both in their first bindings, as can be deduced by the lack of evidence of any re-sewing or re-covering, by the absence of repairs to the spine folds and of unused sewing holes, or signs of textblock edge re-trimming.

3.2.5.3 Material and Structural Similarities

a) Endleaves

A watermark from the endleaves of the bindings were identified clearly on **S.1607** (fig.134). This is a watermark of a *Human with stick in a circle* that is similar to Briquet's group 7563 -7607 and Piccard's group 21423-21430 that date approximately from between 1536 and 1590. Briquet 7593 (Draguignan, 1561) is perhaps the

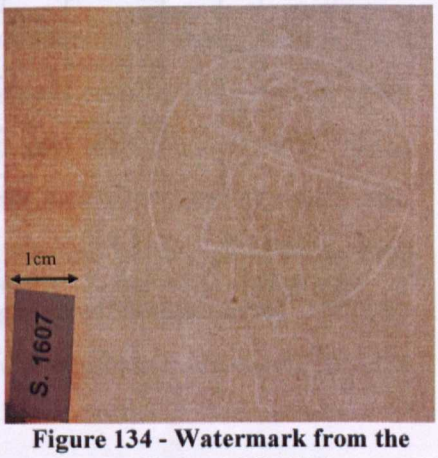


Figure 134 - Watermark from the endleaves of S.1607.

[65] «Εμήσοισεν ο παπά-Κοντοζμάνος δια την [βαλνετίαν;] με τον στραβοσκλάδην [;] ...1607

[66] *"Aldi 17 di guneo alle mone(?)....Candia e fitino Custusto dio [?] a gran Caero per labere di gran conssiggillio di monte sinay"*

closest to this watermark. This date corresponds well with the date of the two printed books (1544) and may confirm the speculation that these bindings were made not long after 1544 during the second half of the sixteenth century.

b) Sewing

All six volumes are sewn with a western-style, supported sewing structure, with tanned-skin of red or brown colour used for the supports. Five out of the six volumes have six sewing-stations (2 kettle-stitches and 4 single sewing-supports), regardless of the size of the volumes, in similar proportions between the stations, as can be seen in fig.135. These proportions are unusual in having slightly smaller distances between the supports 1 & 2 and 3 & 4 than between 2 & 3. This is observed consistently in all five volumes. **S.101** follows the same sewing technique, but has only three sewing supports; however this is justified since it is the thinnest and smallest volume of them all.

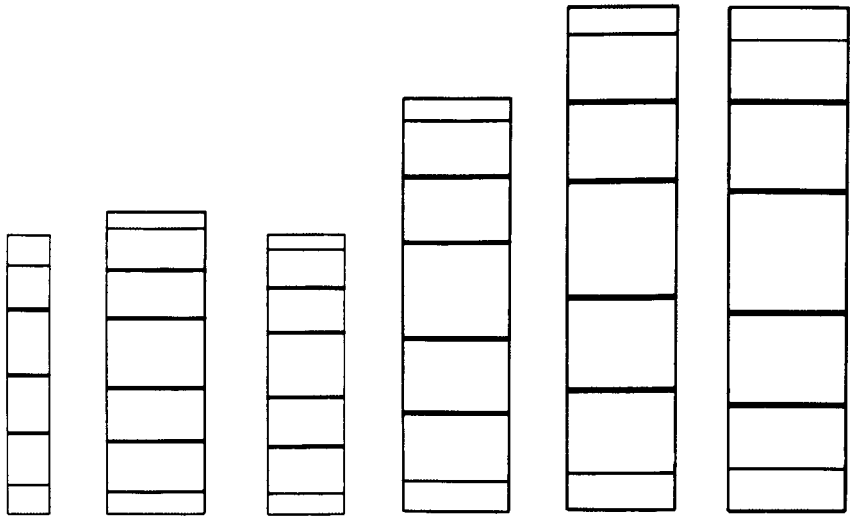


Figure 135 - Drawings of the sewing station arrangement from the six bindings. The dark line corresponds to the sewing supports and the fine lines to the change-over station.

c) Boards

Wooden boards have been used in all six bindings, and beech wood has been identified as the board material in five of these, based on visual observation. In five bindings (all but **S.330**) they are shaped with an internal bevel around their free edges, but with a cushion along the exterior of their spine edges.

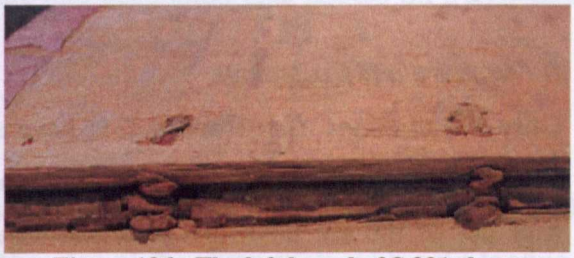


Figure 136 - The left board of S.331 shows the external cushion of the spine edge of the board and the laced in board attachment.

The boards are attached to the textblock by means of lacing the tanned-skin supports through the boards, with channels cut into the inner surface of the boards to accommodate the thickness of the sewing-supports (fig.136). This feature is identical for all six bindings.

d) Endbands

The endbands of five of the bindings have a very similar appearance. They conform to the common western-style compound endband (*Tranchefiles Brodées* 1989, p.32 and Boudalis 2007, p.38, where a simpler variant of this is described as being made in the same way as the *sewn-packed-with-front-bead* primary endband) while on one binding (**S.1607**) the endbands have been lost. The compound endbands are made with a front bead and a crowning core. The primary endband has a single core of tanned skin, sewn with a natural-coloured thread, possibly of hemp, and the secondary sewing, which incorporates an additional crowning core, is worked with two silk threads, which also form a front bead. The silk threads are coloured either pink and yellow (**S.101**), or blue and yellow (**S.330, S.1607, S.Pr.124, S.Pr.128**); the secondary sewing of **S.331** is broken and lost but remnants of yellow thread have survived. The endbands are laced into the boards in all six bindings.

e) Covering

Tanned goatskin of a similar red colour and of a characteristically good quality has been used as a cover for all six bindings. In five of the six bindings, the cover is turned-in at the head and tail over the foredge, while in **S.101** the endleaf pastedown has restricted

visual access to the turn-ins and it is not possible to determine how the corners were formed.

f) Furniture and Fastenings

Only two bindings (S.101 and S.331) have a complete fastening system; however all six bindings have surviving evidence for large parts of their fastenings. Furniture survives in four out of the six bindings. Both the surviving furniture and fastenings have certain pronounced similarities which indicate that they were acquired or made and added by the same person or workshop. They can be summarized as follows:

- **S.101** and **S.3331** have copper alloy folded hook clasps that appear very similar. The same can be said for the copper alloy catchplates of **S.330, S.331** and **S.1607.** These were all nailed to the boards through four nail holes, in addition to which there were three larger holes which were made for decoration.

S.101 S.330 S.331 S.1607

Figure 137 - Clasps and catchplates of S.101, S.330, S.331 and S.1607

- **S.330** and **S.1607,** as well as the two printed volumes, have identical decorative nails to attach the straps onto the boards.

S.330 S.1607 S.Pr.124 S.Pr.128

Figure 138 - Decorative nails used on S.330, S.1607, S.Pr.124 and S.Pr.128 to attach their straps onto the boards.

- The bosses and metal corners of the two printed books **S.Pr.124** and **S.Pr.128** are especially similar in their manufacture and decoration (see photos S.Pr.124a and S.Pr.128a)

3.2.5.4 Decoration

Five out of the six bindings in this group are decorated with blind tooling, using small hand-tools and corner-pieces, while one makes use of the same tools with gold-tooling. The richness of decoration and care with which the tools have been employed on five of the bindings from this group and at the same time the clear lack of these qualities on one volume, present us with work from different ends of the market; **S.101** is a rougher binding than the others and poorer in terms of decoration, making use of one only tool, while **S.330, S.331, S.1607, S.Pr.124** and **S.Pr.128** are clearly works of high quality and precision, making use of excellent quality leather and producing an aesthetically pleasing result that is also achieved and emphasized through their decoration. However, the identical tools used and the layouts in which they are impressed, along with the structural similarities, may support the conclusion that all six of these bindings are the work of one workshop.

As with all the structural features that have been presented above, the decorative layouts and the tools impressed on these bindings are of a marked western influence, most probably Italian, as will be discussed later.

Figure 139 - Serenus Aurelius, *A. Sereni Monopolitani Opuscula*, **Rome, 1512. British Library, shelfmark** *C47k5*. **A characteristic Italian binding with the lozenge shape layout and with frames built up of small hand-tools**

a) Decorative layout of the covers

All six bindings have the same patterns on their left and their right covers. Four of these have the pattern D4, **S.101** has a variant of pattern A5 and **S.330** has pattern J19 (Table 3.2.15).

D4 (fig.140) is a pattern that is related to western bindings of the sixteenth-century, which was seldom favoured by Greek binders. The same layout of decoration can be

found on numerous Italian bindings of the sixteenth century (fig.139). The only instances recorded so far where it appears on Greek bindings is in the *"Klimis"* group (Boudalis, 2004, p.99 and App.I 11 in this thesis) and on **S.989** of *Group 28*. The bindings in the present group however, seem to be altogether far removed from the Greek binding style, both in terms of their structural features and their decoration and although they cover Greek manuscripts, there is little to be seen in them that is Greek.

J19 is a pattern not dissimilar to D4 in terms of the layout of the tooled straight lines, but it also incorporates the use of arabesque corner-pieces, complying with the fashion of the first half of the sixteenth century in Italy, at the time when arabesque designs, centre-pieces and corner-pieces gained increasing importance in Italian decoration. These bindings are therefore made in a style that was fashionable at the time they were made.

S.101	S.330	S.331	S.1607	S.Pr.124	S.Pr.128
~ A5	J9	D4	D4	D4	D4

Table 3.2.15 - The decorative layouts from the six bindings of Group 49

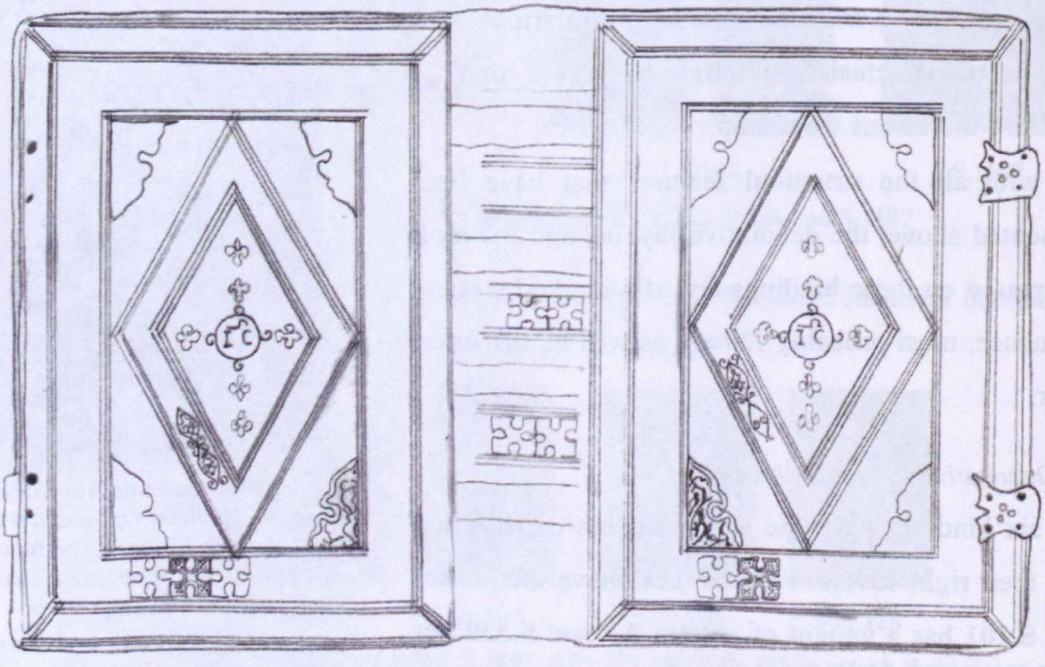


Figure 140 - Full-cover drawing of S.331, showing layout pattern D4 and spine pattern e2.

b) Finishing Tools

Scanned rubbings of the tools from the six bindings were compared through digital superimposition, according to the methodology discussed in chapter 1.1

The tools Hm.is01, Hg.cr01, Hf.fw120, Hf.fl15, Hf.st10 and Lo.ao03a/b that appear on two or more bindings from this group were compared to each other and it was confirmed that they were the same ones used on all six bindings (fig.141).

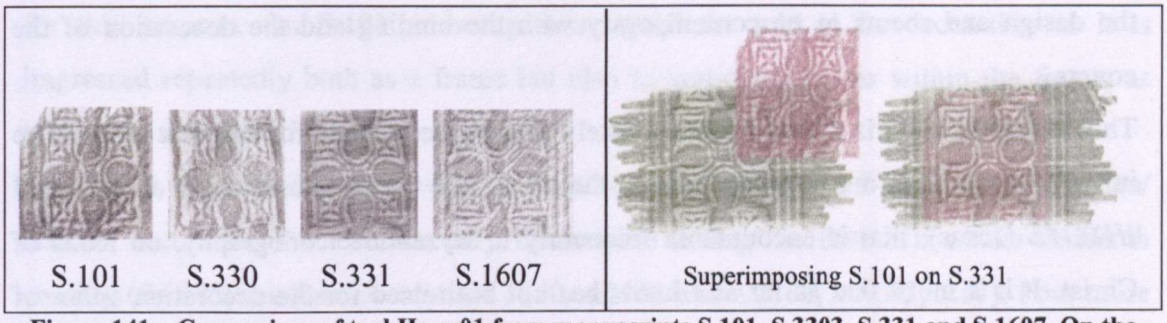


Figure 141 – Comparison of tool Hg.cr01 from manuscripts S.101, S.3303, S.331 and S.1607. On the right, the rubbing from S.101 is superimposed and compared to the rubbing from S.331, to reveal a perfect match.

This fact, along with the structural similarities discussed and the similarities in the layout of the tools, confirmed that these bindings were made and were decorated by the same bookbinding workshop if not by the same person.

There are only six tools recorded. Among these there are two mirror-image corner-pieces and five small hand tools. Five of these are engraved in relief and only one small hand-tool (Hg.cr01) is in intaglio, which is also the only tool that appears on every binding of this group. Two tools (Hm.is01, Hf.fl15) appear on four bindings and the two corner-pieces appear on three bindings. Another tool (Hf.fw120) is impressed on only one binding (**S.331**), which also happens to be the binding which incorporates five more of these tools.

Two bindings are impressed with four different tools, two more with three tools and one binding with only one tool (Table 3.2.14).

The above statistics demonstrate a relative consistency in the tools used on the six bindings which is enough to indicate that these tools were used by the same person or in the same workshop to decorate all six bindings. This fact should be emphasized, particularly since tool Hm.is01 is found on three more bindings from the St Catherine's

library (**S.26, S.1334, S.2030**) apart from the bindings of this group. However, it appears in combination with different tools, on bindings with significantly different structures from those presented in this group. As a result these three bindings have not been considered as part of Group 49 and are most probably made at a different time or by a different binder. Tool Hm.is01 could well have been added at a later date to at least some of these bindings. However, on the bindings of our group it occupies a significant part of the design and seems to be contemporary with the binding and the decoration of the covers.

This tool (Hm.is01) is a Greek tool, or likely to have been made for a Greek client. The initials " I C " that are engraved within the circle, are Greek abbreviation of the word *ΙΗΣΟΥΣ* (Jesus), that is encountered frequently in Byzantine iconography, on icons of Christ. It is a motif that as far as I know has not been used for the decoration either of Greek or Western bookbindings, apart from the bindings mentioned here.[67]

Two out of the three bindings on which this tool appears, and which do not belong to this group, are bindings made in a clearly Greek style (**S.1334, S.2030**) and the other (**S.26**) is a rebinding of an older manuscript with a western, supported, sewing structure. Moreover, an inscription in **S.1334** (Benesevic, 1917, III.1,24 and Spanos 1998, p.8) informs us that it was written in the year 1567 by a Cretan and monk of the monastery of Sinai, named Makarios:

> *"The present horologion was written by the hand of sinful Makarios monk from Crete, Abraam Sinaitis. 1567 indiction ι, month of October, on the 4th day. Glory be to God and may whoever reads this to pray (for me) and not curse to the Lord, for I am ignorant."*[68]

Figure 142 - Appian, *Delle guerre civili de Romani*, 1526, held at the British Library (Davis 754) Binding by the Fugger binder, Venice, 1531-32

[67] Another version of this tool was used on the bindings of two printed volumes: a 1536 Saint Basil and an Aldine edition of Gregory of Nazianzus of 1536. These are Italian bindings, but the monogram tool was almost certainly added sometime after the bindings were completed. Personal communication with Prof. Nicholas Pickwoad.

[68] *«Το παρόν ορολόγιον εγράφη σύν θεώ αγίω δια χειρός εμού του αμαρτωλού Μακαρίου ιερομονάχου του κρητός Αβραμίου, του Σιναΐτου. ζοε ινδικτίωνος ι , μηνί οκτωβρίω ι ημέρα δ . δόξα σοι ο θεός: και οι αναγινώσκοντες εύχεσθαι και μη καταράσθαι δια τον κύριον. Ότι αμαθής ειμί»*

This is information that will, as will be discussed later, help to link the bindings of this group to their possible provenance.

Tool Hg.cr01 is the most frequently used tool of this group, as was mentioned earlier, moreover it is the tool used the most on all the bindings. It appears impressed repeatedly, with one impression next to the other in order to form frames (e.g. fig.140 and photo S.Pr.124a), as well as to decorate the spines of all the bindings, being the only tool used for this purpose. On **S.101**, it occupies a significant role in its decoration as it is impressed repeatedly both as a frame but also in vertical columns within the frame, as well as on the spine.

Lo.ao3a+b are corner-pieces with a characteristic Italian motif inspired by Persian/ Islamic decoration that became very fashionable during the first half of the sixteenth century (fig.142, see also De Marinis 1960, n.2161 and n.2166, vol.II, p.117). Four more pairs of similar tools (Lo.ao01, Lo.ao02, Lo.ao05, Lo.ao06) have been recorded through this research and it is particularly interesting that they appear equally on western and Greek bindings of the early and middle sixteenth century, which indicates a tendency on the part of Greek binders of that period to adopt Italian motifs.

3.2.5.5 Conclusions

In this chapter it has been possible to connect the bindings on four manuscript and two printed books. Based on their structural and decorative similarities it is possible to attribute them to the same binder or bookbinding atelier.

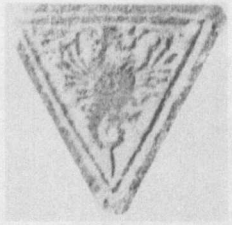
The paleographic notes that are found within these volumes have not been as informative as might have been hoped. Although there is enough evidence to help us date them, it is not enough to locate them. The evidence for this group can be summarized as follows:

1. The dates of the two printed books, which are still in their first bindings, suggest that the bindings were made sometime after 1544. Moreover, the endleaves of **S.1607** can be roughly dated to c.1561. The stylistic appearance of the decoration and the structure of the bindings may also confirm such a time-frame, as they resemble many Italian bindings of that period.
2. The Italian character of the bindings is indicative of the influences on the binder/s. It is clear that these bindings were made by a person trained in the Italian bookbinding tradition with access to Italian finishing tools, who was able to produce bindings to high standards, making use of good quality materials.
3. The note written in Italian found on **S.331** betrays an Italian link too, yet it is written by a Greek hand. This is likely to mean that it derives from either a place in Italy with a strong Greek connection, such as Venice or Southern Italy, or a Greek provenance with strong Italian influences, such as Crete, which at the time was under Venetian occupation. The Italian note, although partly illegible, lets us understand that the manuscript was in Candia, the capital of Crete, and also the place where one of the most important dependencies of the monastery was located, possibly in or until 1607. The person who wrote it then moved to Cairo in order to work on behalf of the monastery of Saint Catherine. We lack any further links between this or other manuscripts in this group and Candia, yet we should regard this location as a likely place where these manuscripts were located and possibly bound.
4. Tool Hm.is01 with the Greek initials "I C" that, in addition to the four bindings of this group, appears on the two Greek bindings, **S.1334** and **S.2030**, further

supports a connection to a Greek clientele or a Greek binder. It may be the case that this tool was passed on from the binder of this group to a Greek binder, or that the same binder was capable of binding adequately in both Greek and Italian styles. The note that we read in **S.1334,** which although not part of our group carries an impression of this tool, denotes a Cretan scribe of the same period as that of the binding of our manuscripts, who calls himself "Sinaitis", an appellation that was common not only for monks of the monastery of Saint Catherine but also monks from its dependencies. Crete, with the important dependency of the monastery in Candia, appears to be the most probable location, which would reinforce the link of Tool Hm.is01 and the bindings of Group 49 with Crete.

5. It is not possible to determine the place where these bindings were made with absolute certainty and we are also not certain if the binder was of Greek or Italian origin. However, Candia in Crete is a possible location, based on the fact that one binding was located there not long after it was written and also on the fact that Crete fulfils many of the characteristics of the Italo-Greek relationship that was very evident on that island in the sixteenth century and which is demonstrated by the present bindings and the notes found in them. However, further evidence from more bindings in other collections that might belong to this group is needed to confirm if these bindings are indeed the products of a Cretan workshop.

3.2.6 Group 33



Ha.dr05

Ha.et46

Hf.fw26

5

Hf.fw38

	Tool / Manuscript	1	2	3	4	5	6
							
		Ha.dr05	Ha.et46	Hf.fw26	Hf.fw38	5	¬
1	S. 1140	x	x	x			x
2	S. 1656	x	?		x		x
3	S.Pr.227	x	x	x		x	x
4	Nat.Libr. Athens 2359	x	x	x		x	x
5	Barocci 211	x	x	x		x	x
6	Vat.gr.2341	x	x	x		x	x
7	Leg.Vat.gr.1509	x	x	x		x	x

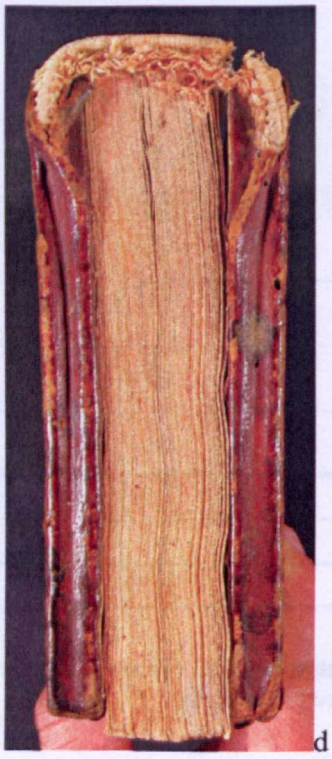
Table 3.2.16- List of finishing tools with their correspondence to the bindings. (Rubbings are not in scale)

S.1140


a


b

c


d

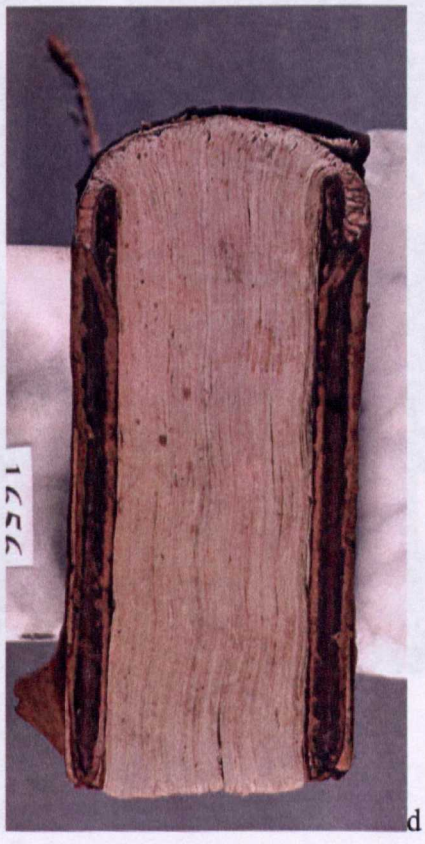

e

S.1656


a

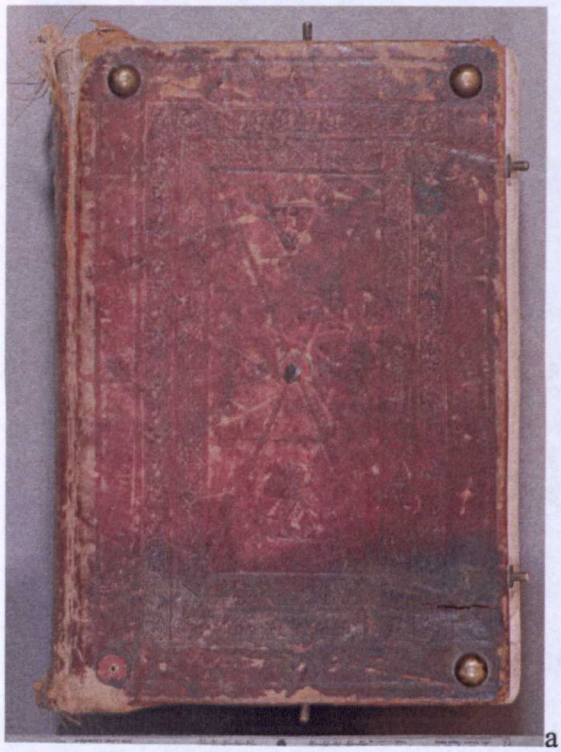

b

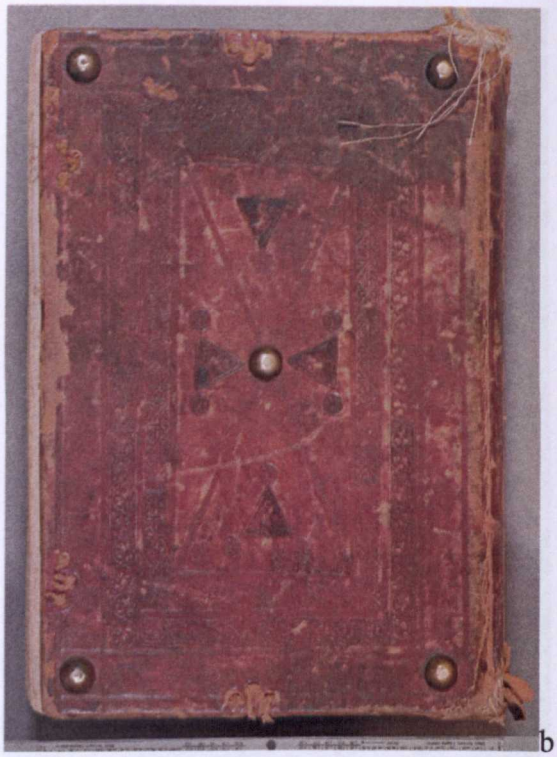
c

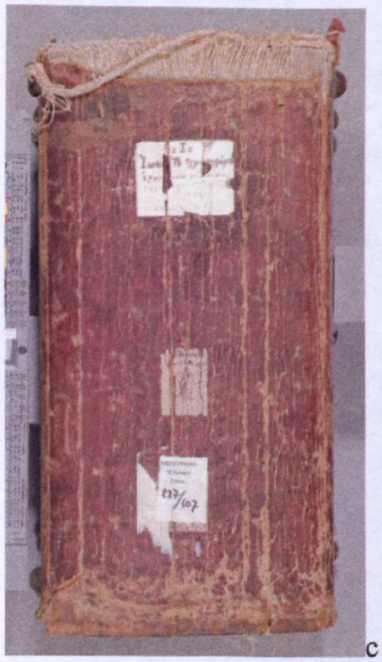


d

S.Pr.227


a

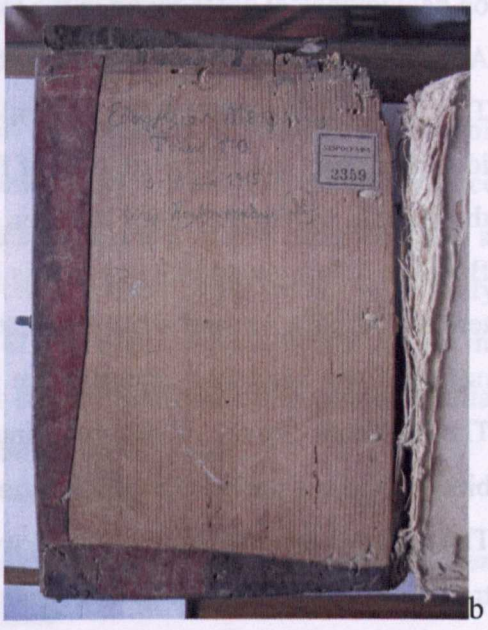

b


c


d

Nat.Libr.Athens 2359

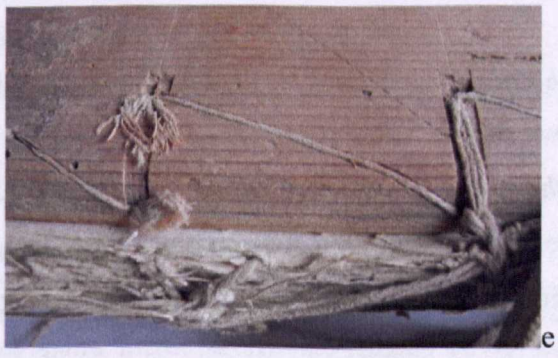
a



b

c

d



e

3.2.6.1 Introduction

This group consists of two manuscript bindings and one binding of a printed book from the monastery of Saint Catherine that are products of the same bookbinding atelier. Based on paleographical notes found in the manuscripts this workshop can be dated circa 1529.
A further four bindings that belong to this group have been identified in other collections. Two Greek manuscripts from the Vatican library, **Vat.gr.234** and **Leg.vat.gr.1509** were identified from the corpus of tools of Federici & Houlis (1989), but due to the closure of the Vatican library they have not been consulted as part of this thesis. **Barocci 211** of the Bodleian Library also belongs to this group, which matches the above bindings both in terms of decoration and structural features, yet it was not considered here since it does not offer any additional material that would be useful for the discussion of this group. The National Library of Athens manuscript **Nat.Libr. Ath.2359** is also in a matching binding and has provided useful information that is presented in this chapter.
The manuscripts of this group as well as the printed book contain all *Theological* treatises. The bookbindings are made in the Greek style, with Greek sewn endbands extending over the edges of the boards, with grooved board edges and bosses and fastenings of the Greek type. Their decoration is blind-tooled, making use of some typical Byzantine motifs of the sixteenth century.

3.2.6.2 Paleographical Notes

The notes in the manuscripts and the printed book of this group are particularly informative about the date of the making and the date of importation of the books to the monastery. However, it is more difficult to establish the location of the bookbinding atelier.
A colophon note in the Greek manuscript **Nat.Libr.Athens.2359** informs us of the date of its completion:

"Completed in the month February 13' in the year 6864 (1356A.D.)"[69]

justifies the inclusion of this binding in this discussion, even though it is not in the collection at St Catherine's. It was signed by its binder who also indirectly gives us

[69] *«ετελειώθει εν μηνί Φευρ(ουαρίω) ιγ'. 'Ετους ζωξδ'»*

hints as to the location of its production, information of a type that is rarely provided by Greek binders. It reads:

> *"The present book was finished with the art of the bookbinder, by my hands, worthless priest Manouil Misinas, also with the surname Julias and may you pray for me."* [70]

The name of the binder is therefore confirmed, but unfortunately it has not been possible to relate the name *Misinas* to a specific family, date or place through archival evidence. Politis (1961) in his catalogue transcription of the note refers to the name Misinas as indication of the origin of the binder from the city of Messina in Sicily, South Italy. However, this is probably a misinterpretation of the name, which seems to be the surname of the binder rather than the city of his origin.[71] However, the surname Julias suggests also an Italian relation, as it is not a traditional Greek name.

S.Pr.227 is a printed volume in Greek which helps us determine the *terminus post quem* of the bindery's period of activity. The title page reads:

> *Diui Ioannis Chrysostomi in omnes Pauli apostoli epistolas accuratissima, uere q' aurea, & diuina interpretatio.* Veronæ, typis æries excusum per Stephanum & fratres a Sabio quarto kalendas Iulias, 1529."

This book is most definitely in its first binding, as there are no signs of re-sewing, repairs on the textblock or other repair work to indicate that it was rebound, while the style of binding as well as its decoration conforms well to the style of Greek bindings of the early to mid-sixteenth century, as will be discussed later. It is most likely that the binding was made soon after 1529.

In **S.1656**, an ownership note on the right endleaves reads:

> *"The present book belongs to me, monk Ionas and I leave it to the monastery so that when it will open again I will take it [?]. It was sent [to me] by my*

---

[70] *«Ετελειώθη το παρ(όν) βιβλίον εκ τέχνης του σιραδοσταχομάτου τε και μόνου, δια χειρός καμού ευτελούς ιερέως Μανουήλ του Μισίνα. Έτερον (δε) επινόμην Τζουλίας και εύχεσθαι υπέρ εμού»*

[71] Personal communication with Prof. Agamemnon Tselikas, Director of the Historical and Palaeographical Archive, of the National Bank of Greece Cultural Foundation, July 2008.

uncle from Misiri (=Egypt) and he bought it from priest Malachias the elder [...], for one reali, in 1632 he sent it to me. Ionas monk, the Cretan"[72]

On f.1r Iona's uncle confirms that he bought the manuscript in 1628.

"And I give this to Ionas my nephew and whoever takes it from him may he be excommunicated and unforgiven by God...1629, August 4th and in 1628 I took this for one reali"[73]

From the above two notes we learn that a certain Father Malachias sold the manuscript in Cairo in 1628 to the uncle of monk Ionas, who then gave it to his nephew in 1632. In 1632 Ionas left the manuscript to the monastery.

Another note on the left endleaves gives us an additional date, through an unusual note:

"They killed Dam(askinos)[74] *in public view in 1623, February 6. The Mezenides killed him and they caught him and dragged him by his beard outside and they slaughtered him like a sheep"*[75]

Figure 143 - Miniature painting on a left endleaf of S.Pr.227, depicting St.Paul dictating to St.John Chrysostom

On the verso of the same endleaf Archbishop Ioasaph of Sinai (1617-1661)

---

[72] *«Το παρόν βηβλίο ειπάρρχει εμου Ιωνά ιερομονάχου κ' το αφήνω εις το μοναστοίρη κ' πάλε οσάν ανοίξη να το πάρο το [...] το έστειλε ο θήος μου απύ το μοισοίρη κ' το αγόρασε απού τον παπά κυρ Μαλαχοία τω μεγάλο [...]ρεάλι ένα εις τοις αχλβ' (1632) απου μου το έστοιλε. Ιωνάς ιερομόναχος ο κριτός»*

[73] *«κ' το δείνο τον Ιωνά του ανιψού μου κ' όπειος του το πάρι έστω αφορεσμένος και ασυγχώρετος παρά θ(εο)ύ παντοκράτωρος κ' να είναι του αναθέματος η ψυχήν του. Αμήν αχκθ αυγούστου δ' και εις αχκη' επείρα αυτώ ριάλι α'»*

[74] Damaskinos referred to here is the well-known Damaskinos Sinaitis who died as a martyr, and whose biography mentions that, as the note also confirms, he was killed outside the walls of the monastery in 1623. "Mezenides" is possibly a name for the local inhabitants.

[75] *«Εσκοτόσαν τω δαμ(ασκηνό) κηνώς εις τοις αχβγ'(1623) φλεβαρίου 6 κ' τον εσκοτόσασοι ει μεζένοιδες κ' τον εποιάσασοι απού τα γένηα και τον βγάλασοι όξο κ' τον εσφάξασοι οσά πρόβατο».*

signed another ownership note, which, along with the previous two notes, confirms that the manuscript was already at the monastery by 1632, and that it became part of the collection during Ioasaph's appointment.

In addition to the inscriptions discussed, another feature is important for understanding the possible origin of this group of bindings. **S.Pr.227** has a miniature painted on the verso of the fourth folio– and inner-most - of the left endleaves (fig.143). The icon depicts St Paul dictating to St John Chrysostom, who is writing on a scroll. The style of the iconography is striking and according to Prof. Tselikas[76], this is most likely to have been painted by someone who had been trained in Crete.

3.2.6.3 Material and Structural Similarities

a) Endleaves and watermarks

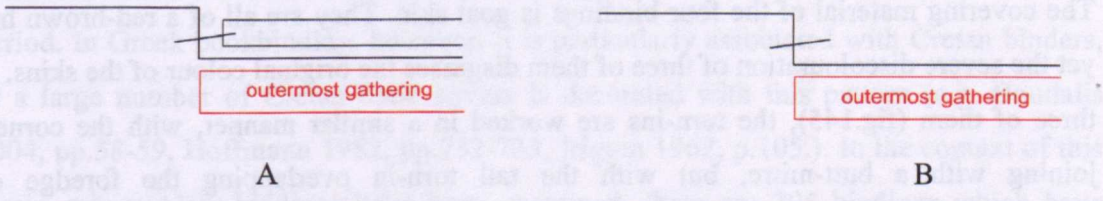


Figure 144 - The two formats of endleaf units encountered on the bindings of Group 33

Three out of the four bindings have endleaves that were added to the textblock gatherings, and consist of two paper bifolia of type A. The outermost leaf is pasted to the board. On **S.1140** the endleaves consist of one bifolio only, as in type B, with the outer leaf pasted to the board and one flyleaf (fig.144).

Unfortunately, none of the endleaves have identifiable watermarks and it has therefore not been possible to date them or to relate the papers used in the four bindings.

b) Sewing

All four textblocks are sewn with an unsupported sewing structure. However, the four textblocks are of significantly different size and it is therefore likely that the number of

[76] Personal communication with Prof.Agamemnon Tselikas, Director of the Historical and Paleographical Archive of the National Bank of Greece Cultural Foundation, July 2008

sewing stations would vary even if made by the same binder. **S.1140** measures 170m and is sewn on 3 sewing stations, **S.1656** measures 206mm and has four sewing statio similar to **Nat.Libr.Athens 2359** and **S.Pr.227** measures 346mm and has five stations.

c) Endbands

The endbands that have survived on the four bindings are of the Greek double-core ty Two of these (**S.1140** and **S.Pr.227**) have also remnants of secondary endbands wov over the primary Greek double core. Pink and yellow/green (**S.1140**) or pink and gre (**S.Pr.227**) silk threads are woven in chevrons over natural coloured warps, as remnants still show (see photos S.1140e and S.Pr.227d). This is a type of endband tha often related to Cretan bindings (Irigoin, 1962 and Boudalis, 2004). The pink silk thre on these two bindings have very similar thickness, hue and texture and based on vis observation they would appear to be the same thread.

d) Covering

The covering material of the four bindings is goat skin. They are all of a red-brown yet the severe discolouration of three of them disguises the original colour of the skins three of them (fig.145), the turn-ins are worked in a similar manner, with the corn joining with a butt-mitre, but with the tail turn-in overlapping the foredge **Nat.Libr.Athens.2359.**

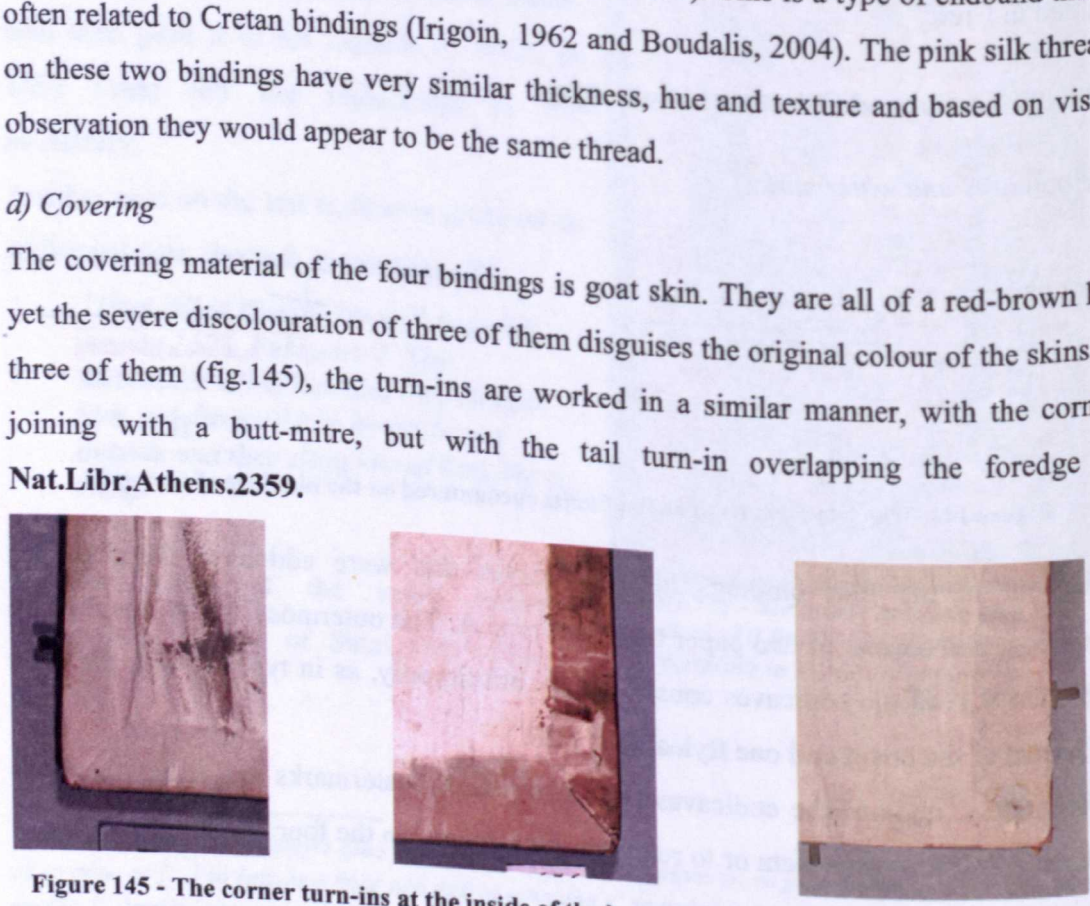


Figure 145 - The corner turn-ins at the inside of the boards from S.1140 (left), S.1656 (middle) a S.Pr.227 (right)

3.2.6.4 Decoration

The bindings of this group are decorated with blind-tooling, using small hand tools. motifs of these tools conform to the decorative styles of Greek bookbinding of the

sixteenth century. The major similarities that are observed between the four bindings discussed in this chapter are in regard to their decoration. The finishing tools used and the layout patterns in which the tools are arranged are very consistent and support strongly the claim that these bindings were made in the same bookbinding workshop.

a) Decorative layout of the covers

Two decorative layout patters are recorded:

a) B4 (**S.1140** and **Nat.Libr.Athens2359**) or B5 (**S.Pr.227**) consist of two and three frames respectively and a saltire inside the inner frame (fig.146) and

b) B9 (**S.1656**) is as B4 with an horizontal line over the saltire. Both patterns are very common in the decoration of Greek bookbindings and they are referred to by Federici & Houlis (1988) as among the 12 the most common layout patterns they recorded from the Greek bindings in the Vatican library.

These two patterns are not found exclusively on Greek books, as they are to be found on numerous western bookbindings and it is difficult to attribute them to a specific area or period. In Greek bookbinding, however, it is particularly associated with Cretan binders, as a large number of Cretan book covers is decorated with this pattern (e.g. Boudalis 2004, pp.58-59, Hoffmann 1982, pp.732-733, Irigoin 1962, p.105.). In the context of this thesis, where 1195 bindings have been examined, there are 204 bindings which have decorative patterns B1 to B11 on one or both of their boards. As can be seen in the relevant diagrams, these 11 patterns are closely related, since they have only minor differences between them, such as the number of concentric frames, or the length of the two diagonal lines. A number of these bindings have been dated and it has been possible to establish that these motifs appear from the middle of the fifteenth century to the eighteenth century. These bindings are Greek (70.6%), Western (22%), Greek-Western hybrid (4.9%) and Islamic (2.5%) in style. It is characteristic that these spread out equally throughout the four centuries, with 30% appearing in the fifteenth, 20% in the sixteenth, 26% in the seventeenth and 24% in the eighteenth century. These figures demonstrate how popular these patterns were and how they remained so throughout the Byzantine and post-Byzantine era, regardless of the structural style that was adopted.

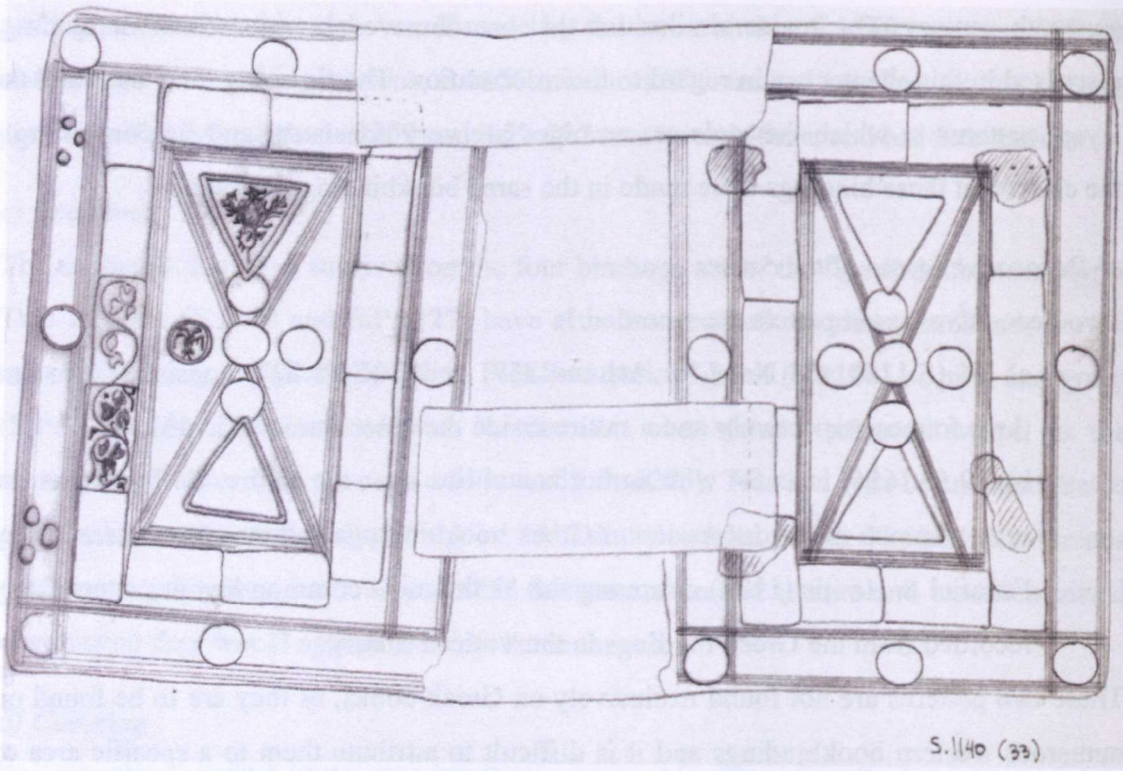


Figure 146 - Drawing of the decorative layout on the binding of S.1140

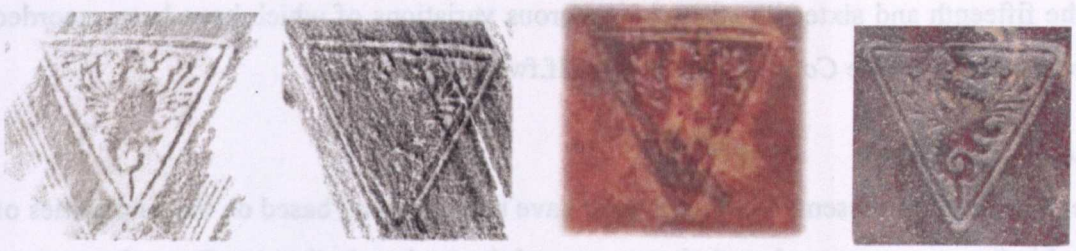
b) Finishing Tools

The collection of tools that appears on the four bindings of this group consists of five small hand tools and a multi-line tool[77]. As we can see in table 3.2.16, two of these tools, Ha.dr05 and Ha.et46, appear consistently on every binding in almost identical positions within the layout. The other three tools, Hf.fw28, Hf.fw38 and the unrecorded tool No.5[78] (see table 3.2.16), are tools with representations of vegetation that are impressed repeatedly to form frames around the central panel and each appears on three, one and two bindings respectively.

The tooled impressions were compared using the methodology of superimposition of rubbings, which has helped to confirm that the same tools were used on the four bindings.

[77] All four bindings have impressions of a four-line tool. However it is not possible to confirm whether the impressions were made with the same tool.

[78] Tool No.5 is not recorded in the corpus of tools as part of the thesis since it has not been impressed on any bindings of manuscripts from the St Catherine's collection.



S.1140 S.1656 S.Pr.227 Nat.Libr.Athens2359

Figure 147 - Impressions of Ha.dr05 on the four bindings of the group

The tools that were used on these bindings do not show any unusual features as far as their design is concerned. Ha.dr05 is a dragon tool, similar to those we have discussed in previous chapters (3.2.2 and 3.2.3) and many more have been recorded on Greek bindings originating from Crete and Cyprus (for example Regemorter 1954, Irigoin 1962, Grosdidier de Maton 1989, Frederici & Houlis 1988, Houlis 1999 and Boudalis 2004). What distinguishes it slightly from other triangular dragon tools is that it is in the form of a perfect equilateral triangle, when most of the triangular tools recorded are isosceles triangles and that it is smaller by up to 1cm in height than most of them. The only other equilateral triangle dragon tool that I am aware of has also been recorded in the library of St Catherine's. It is Ha.dr01, a tool of nearly identical dimensions to Ha.dr05 and closely similar to it, which is also found on Cretan bindings (3.2.3) of the sixteenth century. Dragon tools within an equilateral triangle may be characteristic of Cretan bookbinding workshops, though a larger sample of similar tools would be required to confirm this conclusion.

Ha.et46 is a small, round tool with a double-headed eagle. Although not unusual as a representation, the positioning of the tool on the four bindings is distinctive. It is used in several positions in the layout: in the central panel in multiple impressions shaped in a form of a cross or within the triangles that are formed by the diagonal straight lines and finally around the outer concentric frame or at the joints of straight lines.

Hf.fw26 and Hf.fw38 are two similar small hand-tools. They depict floral branches engraved on rectangular tools, which are used in multiple impressions, end to end, to create concentric frames on the covers. These motifs are very common on Greek bindings

of the fifteenth and sixteenth century, numerous variations of which have been recorded also in this thesis (see *Corpus –Volume 2* : Hf.fw01 to Hf.fw34).

3.2.6.5 Conclusions

The four bindings presented in this chapter have been grouped based on the similarities of their binding structures and on their pronounced decorative similarities. From the notes in the St Catherine's bindings, we have been able to date these bindings approximately to c.1529, to understand that they are not local products and also to learn that they arrived at the monastery around 1623-32.

The binding of **Nat.Libr.Athens2359** bears a note which also gives us the name of its binder. The Greek priest Manouil Misinas signed the binding himself, mentioning also that he was responsible for the repair and rebinding of this manuscript. As a result, the group of these four bindings, and possibly three more with identical decorations (**Barocci 211, Vat.gr.2341** and **Leg.Vat.gr.1509**) may be attributed to him.

Where Manouil Misinas came from and where he worked are not known, since neither his note or any other notes in the bindings examined give us this information. We can only speculate where they were may have been made. The style of decoration is certainly Greek, and the motifs of the decorative tools used, in particular the triangular dragon tool and the repeated floral tools, have often been linked with Cretan decoration and it is a distinct possibility that these bindings were also made there. One other feature that suggests a Cretan origin is the compound endbands on **S.Pr.227**, which are also a characteristic of Cretan bindings of the fifteenth and sixteenth centuries. The miniature painting at the beginning of the book is also significant. It is a depiction of St Paul and St. John Chrysostom, which shows elements of Cretan art.

The structural features that were examined in these bindings do not demonstrate any particularly distinctive characteristics. As a general observation, we can say that features from Cretan bookbinding of the same period are evident on these bindings, as judged by the decorative layouts, the iconography of the finishing tools and the use of endbands with a chevron secondary-sewing. The inscriptions found in the manuscripts do not provide enough evidence to reveal the location of the bookbinding atelier, so that the provenance of the bindings can only be based on their decorative and structural features. These all point to a Cretan origin.

3.2.7 Group 21

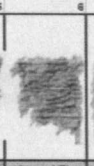
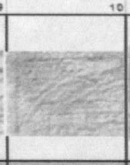
	Tool / Manuscript	1 	2 	3 	4 	5 	6 	7 	8 	9 	10 	11 	12 	13 	14 	15 	16 	17 	18 	19 	20 
		Ctje03	Ctoxf1	Cto03	Cm.is01	Ltevl7a	Ltevl7b	Ltevl7c	Ltevl7d	Ltag01	Lffw28	Lffw32	Lffw29	Rffe12	Rffw108	Htag02	Hfst23	Hfst42	Hfst58	Hfrs42	?
1	S. 0069	x	x	x	x	x	x	xx		x	x	x		x	x	x	x	x		x	x
2	S. 1052	x	x	x	x					x		x	x	?	?	x	x				x
3	S. 2012	x		x								x	x	x		x	x	x	x	x	x
	Iviron 1527	x	x	x	x					x		x	x	x		x	x			x	x

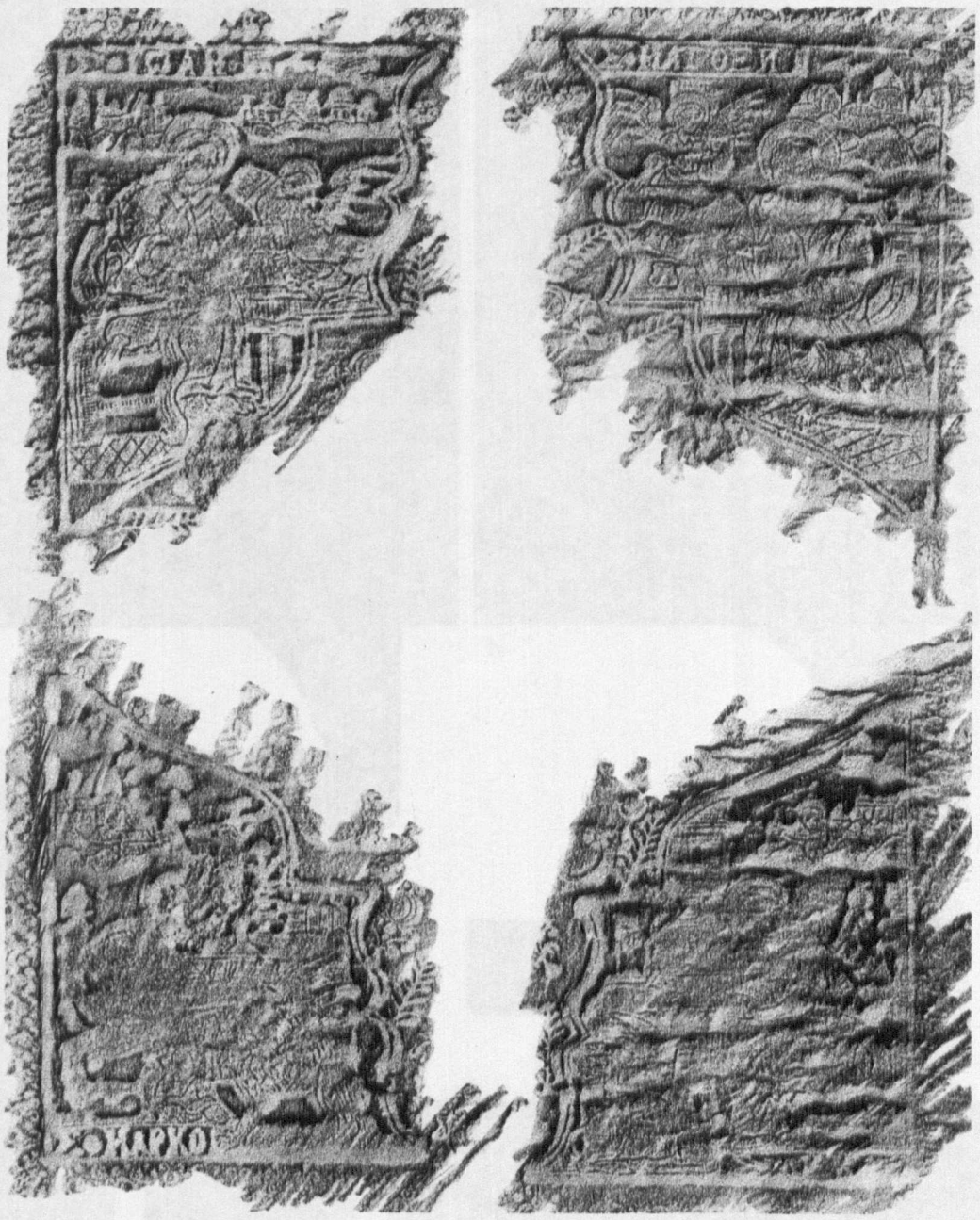
Table 3.2.17 - List of finishing tools with their correspondence to the bindings of *Group 21* **(Rubbings not in scale)**

Ct.je03

Ct.cx11

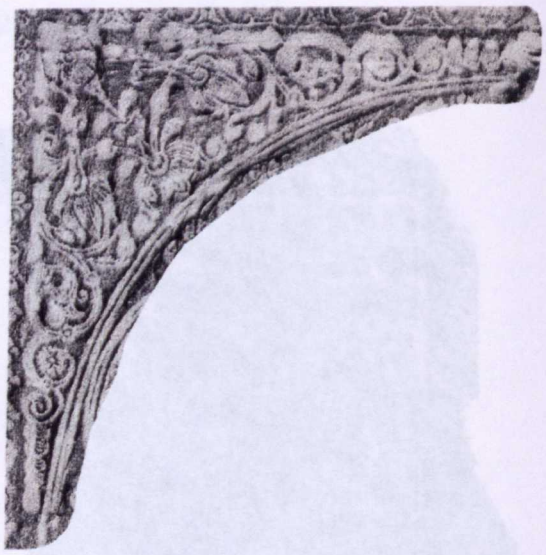
Ct.ot03

Cm.is01

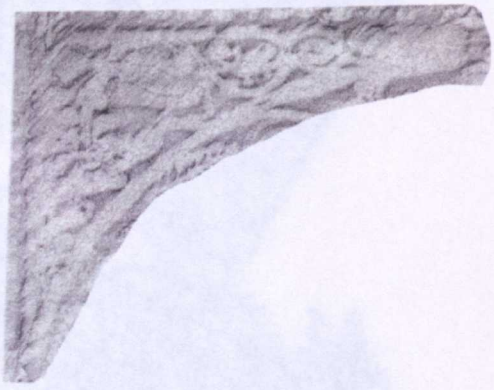


Lt.ev17

Lt.ag01



Lt.fw32



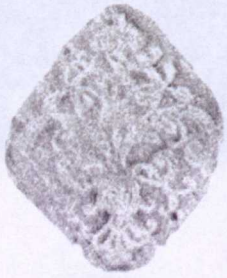
Lf.fw28

Lf.fw29

Rf.fe12

Rf.fw108

Ht.ag02



Hf.st58

Hf.st42

Hf.st23

Hf.rs42

-

-

S.69

a

b

c

d

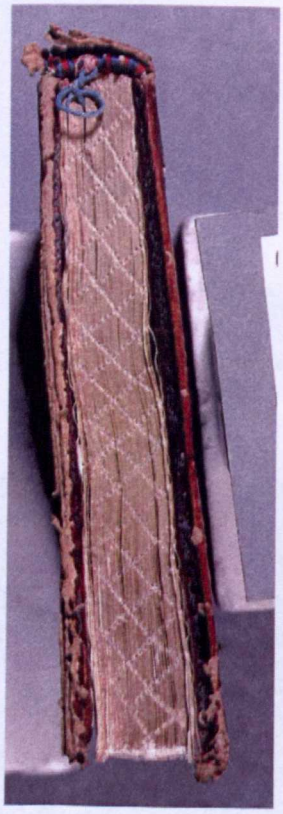
e

S.1052

a

b

c



d

e

S.2012

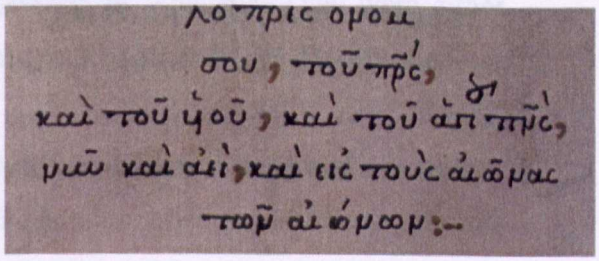
a

b

c

d

e



f

MS. Iviron 1527

a (the photograph is copied from the PhD thesis of G.Boudalis 2004, p.317)

3.2.7.1 Introduction

This group consists of three bindings from the monastery of Saint Catherine. These bindings are closely related to their manuscripts, all of which are written in Greek by monk Anthimos from Ioannina around the years 1638-1641, most probably in Walachia. Anthimos is a well known scribe of manuscripts who is linked with the school of Matthaios Myreon and Bishop Lucas Bozeos, all of whom lived and worked in Walachia in the seventeenth century[79]. Numerous manuscripts by their hands and by those of their followers are to be found in Greek libraries, a great number of which were gifts and dedications from Voivodes, rulers and commissioners of Walachia to monasteries and Patriarchates of the Orthodox world (Politis 1961). The manuscripts are often liturgies, decorated with lavish headpieces and initial letters, appropriate for the status of the people who commissioned the work and such are the three manuscripts in the library of the St Catherine's monastery. **S.1052** and **S.2012** of this group are *Liturgies* too, while **S.69** contains the *Old Testament.*

The bindings had to be equally appropriate as gifts from people of high status. As such they are some of the most richly decorated bindings to survive at the monastery. Their lavish gold - and silver-tooled covers and the gilt and gauffered textblock edges are indications of expensive and carefully-made bindings that can be considered examples of the top end of the book trade that came from Walachia and some of the most luxurious leather bound bindings of the seventeenth century to survive at the monastery.

The style of the bindings, as well as the scribe's inscriptions and location, suggest that these bindings were made by a bookbinding workshop in Walachia. They were either donated to the monastery of Saint Catherine directly or brought to the monastery at a later date.

Two more bindings that probably match this group are mentioned briefly and one (Iviron 1527) is reproduced by Boudalis (2004, p.316/ p.320), yet it was not possible to examine these personally.

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[79] Personal communication with Dr Kriton Chrysochoidis, Director of Research at the Institute for Byzantine Research, National Hellenic Research Foundation (2 November 2009). On Lucas Bozeos and Matthaios Myreon see Galavaris (2000), *Ιερά Μονή Ιβήρων.*

3.2.7.2 Paleographical Notes

A scribe who signs himself as monk Anthimos from Ioannina is responsible for all the manuscripts of this group. He has signed and dated all three of them and has also provided other types of information, such as the name of a person who commissioned the completion of a manuscript, as well as his donation of another manuscript to the monastery of Saint Catherine.

On the right endleaves of **S.69,** we read

> *f.188 "The present hymns were written by worthless monk Anthimos. Whoever reads it may he commemorate in love and not to curse for my mistakes. In the year 7146", "From Christ the year 1638"*[80]

A similar note in **S.1052,** written in the same hand mentions:

> *f.98: "The present book was written by worthless monk Anthimos from Ioannina. May those who read this pray for me to the Lord. In the year 1641"*[81]

The next folio of the same manuscript contains an additional note by the same hand that confirms our speculation of a link of these manuscripts with Walachia. It reads:

> *f.99: "The present liturgy is dedicated to the holy mount of Sinai by the most respectable and honourable ruler Ioannis Voivode of all Wallachia, for his eternal commemoration. Whoever wishes to remove this from the monastery may he be judged with Judas."*[82]

One of the manuscripts at Iviron monastery (Ms Iviron 1527) also mentions in a note that it was written by Anthimos from Ioannina in 1641 (Boudalis, 2004, p.320), therefore a link between Anthimos and these books is further confirmed.

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[80] *«Το παρόν ψαλτήριον εγράφι υπό ευτελούς ανθίμου ιερομονάχου. Και ος αναγινώσκον της δεόμε[;] την ημέραν αγάπην εύχεσθαι κ' μη κατηράσθε περί τα σφαλέντα μοι:-Επί έτους ζαμστ'» «από δέ Χριστού αχλη'(1638)»*

[81] *«η παρούσα δέλτος εγράφη υπό ευτελούς ανθίμου ιερομονάχου του εξ ιωαννίνων και οι αναγινώσκοντες εύχεσθαι μοι διά τον κ(ύριο)ν. Έτους ζρμθ (1641)»*

[82] *« η παρούσα λητουργία αφιερώθει εις του σινά το όρος. Παρά του ευσεβεστάτου καο εκλαμπρωτάτου αύθεντος κυρίου Ιωάννη ματέη [;] βοηβόδα πάσης ουγκροβλαχίας. Εις μνημόσυνον αυτού αιωνίον. Και όπιος βουληθή να την αποζενώσι από το μοναστήρι να κρένεται με τον ιούδα¨-»*

It is also interesting to see that S.1052 became part of the St Catherine's collection soon after it was completed. It was commissioned by a high-ranking ruler of Walachia (Voivode) in order to be presented as a gift to the monastery, which suggests that this book was of some value, hence possibly the extensive gold-tooled decoration of its binding. It also suggests a close link between the scribe and the bookbinding workshop with Walachia.

3.2.7.3 Material and Structural Similarities

a) Endleaves and watermarks

The endleaves of the three bindings from the monastery at St Catherine's that were investigated do not show any similarities in the way these are constructed. The papers used are also different, yet the endleaves of **S.69** are integral to the textblock.

Two watermarks were found in the endleaves of **S.69** and **S.1052**

- **S.69**: *anchor in circle, above it a trefoil,* similar but not identical to Heawood 1 and 2 (1609 – 1610)
- **S.1052**: *three crescents,* similar but not identical to Heawood 864 (Venice 1686)

b) Sewing

The sewing technique used on the textblocks of the three bindings is identical, while western in style. They are made with double raised supports made of twisted cord. The thread is single in **S.69** and **S.1052** and double in **S.2012.** It is a thin thread made with an S-ply of a fairly loose twist that is very similar in appearance in all cases, and the double cores are sewn as one (fig.148).

Figure 148 - Sewing of S.2012, where the double core support and the double thread is shown

Three (**S.1052**) or four (**S.69** and **S.2012**) sewing supports are used, in addition to two change over stations in each binding.

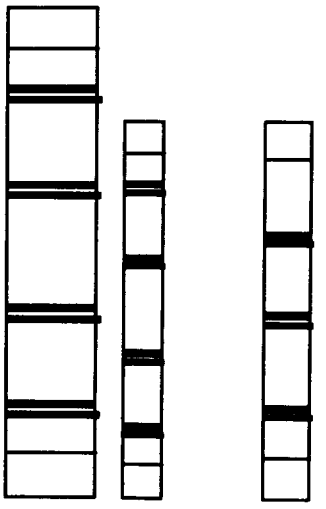

Figure 149 - Diagrams of the textblock spines and the sewing supports (S.69, S.2012 and S.1052 from left to right)

c) Boards and Board attachment

The boards used for the three bindings are very similar, as far as it was possible to see under the covers and the endleaves. The boards are made of wood, measuring 5-6 mm in thickness. In all three bindings the boards are made with squares around the textblocks and the board edges are shaped with internal bevels. The spine edges of the boards where only visible in **S.2012**, where it shows that these are profiled to a narrow square flat edge. The other two are not visibly accessible; therefore it has not been possible to compare them.

The attachment of the boards is achieved by lacing the slips of the double cores through two holes drilled in the boards. In **S.2012** this is seen more clearly as the inner face of the left board is exposed, where it can also be seen that channels were carved to accommodate the thickness of the cores. Small folded pieces of leather were also used as pegs inserted in the holes where the cords pass though, in order to fasten the cords tightly (fig.150).

Figure 150 - Inner face of the left board of S.2012, showing the double cord sewing supports laced through the board, as well as strips of tawed skin used as transverse lining.

d) Spine lining

The same type of spine lining is observed in the three bindings. This is a transverse[83] type making use of parchment (**S.69**) or tawed skin (**S.105, S.2012**), adhered to the spine and extending over to the inner side of the boards (fig.150 and fig.151).

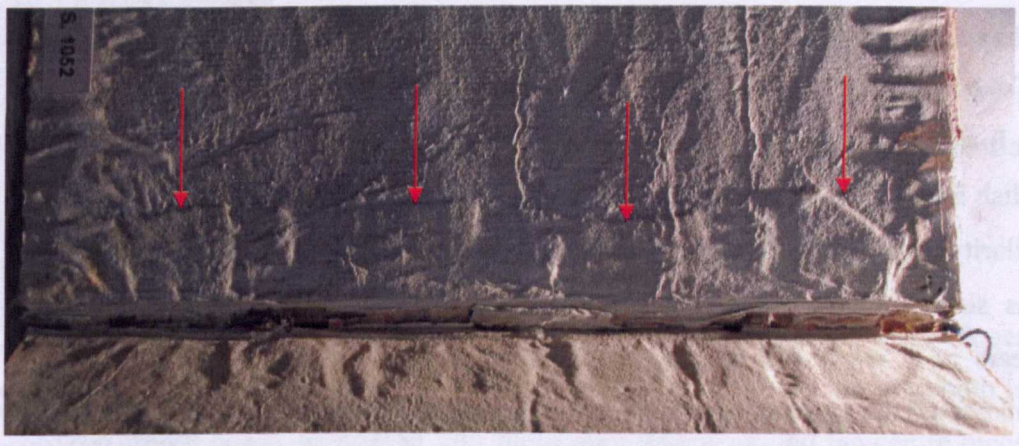

Figure 151 - Raking light on the inner side of the left board of S.1052, shows traces of the transverse lining strips (red arrows)

Transverse spine linings are found exclusively on textblocks sewn with supports; hence they are characteristic of western bookbinding techniques. This type of lining was common in western and eastern-European bindings from as early as the Carolingian and

[83] The term given by the *Ligatus Bookbinding Glossary* for transverse lining is defined as *"a lining type associated with books sewn on supports, in which the linings take the form of strips of material stuck across the spine between the supports and with joints extending onto the boards."*

Romanesque period (Szirmai 1999, p126, and p.158) and was used in numerous variations throughout the centuries. It is also clear that eastern-European bookbindings, which have generally adopted western bookbinding techniques and more particularly German models, have often used this type of lining of the spines of textblocks sewn with supports.

d) Endbands

The endbands of the three bindings conform to the overall western style of the bindings. **S.69** is has a primary two-coloured sewing on two cores, which are recessed and adhered to the boards. However, it is possible that this endband was added at a later date, since the binding has been rebacked and may have had the original endbands replaced. The endbands of **S.1052** and **S.2012** are identical. They are stuck-on endbands[84] worked with a blue and a red silk thread, which were sewn first on a piece of textile (see photos S.1052e and S.2012e).

Figure 152 - Detail from the binding of S.2012, showing pleating of the leather cover.

e) Covering

The bindings are covered in full goatskin leather with a reddish hue, and are very similar in appearance. A striking similarity derives from a deficiency in the three covers. The skins seem to have lifted and pleated in areas in what appears as a wavy effect, most probably as a result of shrinkage of the wooden boards across the grain (fig.149). The leather covers did not shrink in the way that the boards did and consequently they were deformed. This is very prominent on the three St Catherine's bindings and not on the Iviron binding. It also clear that this effect has a vertical direction in **S.1052** and **S.2012** and a horizontal in **S.69,** indicating also the grain

[84] According to the *Ligatus Bookbinding Glossary "a stuck-on endband has been worked with thread. This is the only circumstance in which an endband can have a secondary sewing without a primary sewing. These endbands were a German development of the late fifteenth century, and are occasionally found on bindings from the Eastern European Orthodox world."*

direction of their boards. The quality of the boards in combination with their exposure to a dry environment with particularly low relative humidity, such as that of Sinai, has resulted to this distinctive deformation. What is evident is that the same damage is apparent in the three bindings, proof that the same materials and techniques for applying them were used that lead to similar reactions.

f) Textblock edge decoration

All three textblocks have gilt and gauffered edges. Two of these are very similar in style and have similar designs with floral representations made with a sequence of small pointed punches (see photos S.69d and S.2012d), while one has a diamond pattern. It is most likely that these were completed at the time of the binding of the book and not at a later stage.

3.2.7.4 Decoration

The decoration of the three St Catherine's volumes as well as that of Ms Iviron 1527, are produced with such distinct similarities, such as the combination of gold and silver-tooling, the large number of tools used and the similarity in which these are arranged that they are beyond doubt produced by the same workshop. They are some of the most richly-decorated covers to be found within the St Catherine's manuscript collection as well as among the most clearly matching bindings.

a) Decorative layout of the covers

The layouts of the covers are nearly identical and are classified as pattern J13. A centre-piece is the focal point of the decoration, around which corner pieces are used both in the four corners of each board, as well as four more impressions around the centre piece, on two of the bindings: concentrically on **S.69** or at an angle on **S.1052**. Rolls are used to create an outer frame, while several small hand tools fill the space between the centre and corner pieces, so tightly that often one impression overlaps another. The spines are also tooled with small hand tools in the panels between the sewing supports and straight line tools are tooled over the bands in a hatched design (fig.154).

Figure 153- Rubbing of the right board of S.69

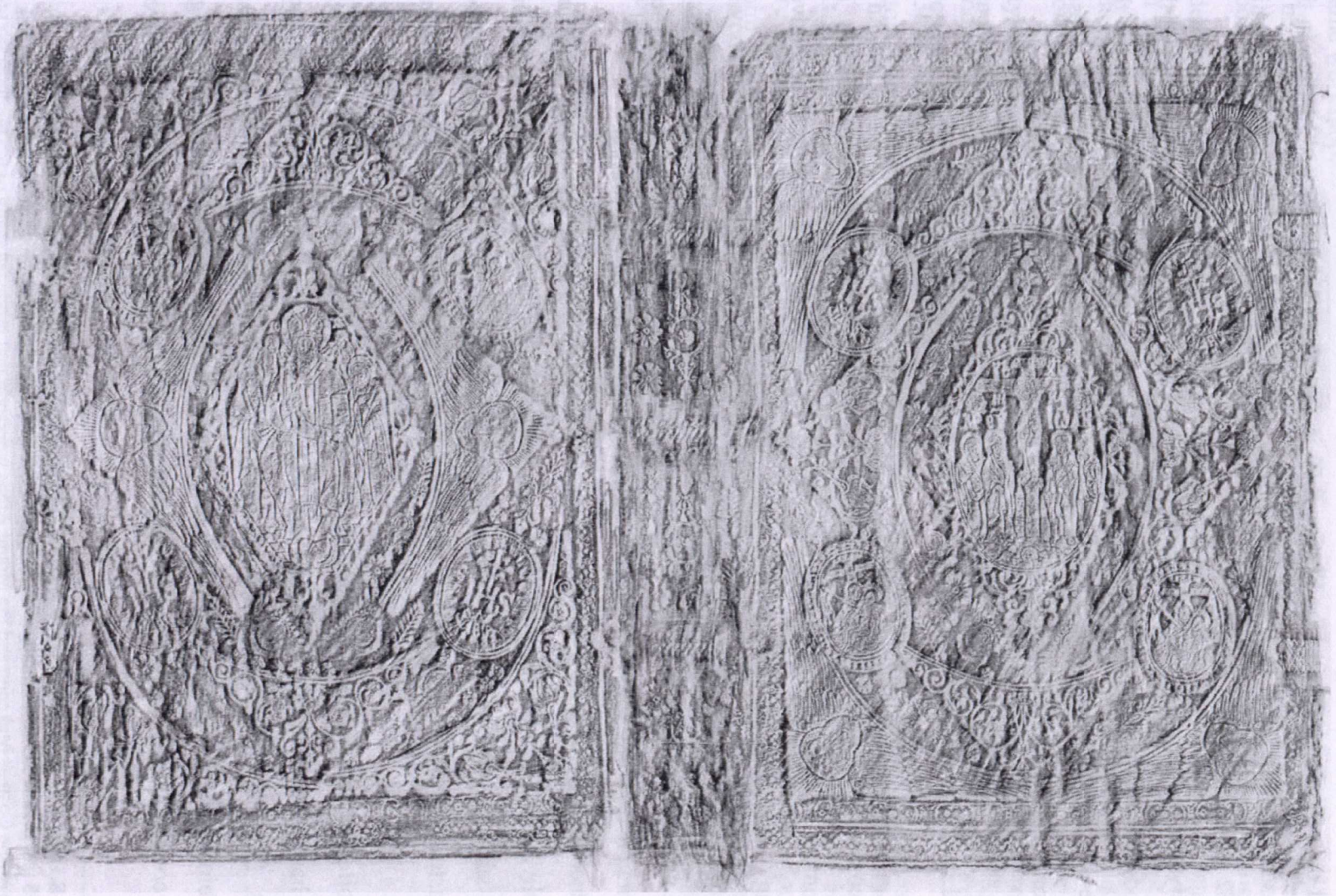

Figure 154 - Full rubbing from the binding of S.1052

b) Finishing Tools

The number of tools recorded on each of the bindings is among the highest number to be found on a single binding in the library. **S.69** is the most richly decorated binding in the manuscript collection in the monastery library, using a total of 18 different tools, while **S.1052** uses 12 tools and **S.2012** 11 tools.

The style of the tools used is characteristic of Greek and Eastern European bindings of the Orthodox world from the eighteenth century. The focal points of their decoration are the centre and corner pieces with theological representation, such as the crucifixion, Jesus enthroned and angels with wings, which proclaim the religious content of the book.

What strikes as unusual in this group of bindings is the fact that the all the left boards are tooled in gold, while the right boards and the spines are tooled in silver, which has now oxidized and darkened. The combination of gold and silver tooling on one binding is not a very common feature of Greek bindings and is possibly linked to luxurious bindings. In the context of this thesis there are only twelve bindings recorded with gold and silver tooling[85], including the three of this group. The majority of these date from the mid-seventeenth to the mid-eighteenth century, while one (**S.2153**) dates from c.1830-40. It is worth noting that the style of these bindings is similar to the three bindings of the group presented here, while some are linked to Northern Greece and eastern Europe[86].

The decoration with gold and silver on our bindings is executed particularly well and carefully, apart from the fact that some tools overlap one another in an attempt to fill the cover surfaces with tools as densely packed as possible. The quality of execution demonstrates professional work by a finisher with great experience in tooling in gold and silver.

The collection of tools used include four centre pieces, eight corner pieces, two rolls, six small hand tools and one multi-line tool with two lines. Five of these tools (Ct.je03, Ctot03, Lf.fw32, Ht.ag02 and the small dot (tool number 20 in Table 3.2.17) appear on every binding of this group, while eight more tools appear on two bindings. The rubbings of the corresponding tools from each binding were compared by superimposing one over

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[85] **S.69, S.1052, S.1239, S.1248, S.1518, S.1583, S.1616, S.1849, S.1944, S.2012, S.2105, S.2153**

[86] **S.1248** and **S.1849** are two bindings that belong to Group 3 (See App.II 3) which are likely to have a link with the scribe Cosmas Makedon and the Mount Athos workshop that produced many of the bindings for his manuscripts. For some Cosmas Makedon bindings see Boudalis, 2004, pp.306-323 and Appendices App.II 3, App.II 4, App.II 5 and App.II 6. **S.1616** is a binding with many of the Germanic features that were adopted in the eastern European bookbinding tradition, such as the external bevels on the boards, along with crucifixion centre-pieces, in a combination that makes an attribution to eastern Europe very likely.

another and it was clear that they derived from the same tools. Moreover, the large number of common tools confirms that the bindings were decorated with the same tools in the same workshop.

The two centre-pieces (Ct.je03 and Ct.cx11) were probably a set or two sides of the same tool, since the style of the engraving is very similar in the two and their dimensions are identical. The four evangelist tools also seem to be a set as they depict the four evangelists in matching style, and carry inscriptions of their names in the same Slavonic script. Four more tools bearing theological representation are the centre-pieces Ct.ot03, Cm.is01, the corner piece Lt.ag01 and the small hand tool Ht.ag02, the latter two of which depict stylized cherubs. Such tools are common in bindings of Greek books of the seventeenth and eighteenth centuries as numerous similar examples can confirm (e.g. tools 62b and 63b in Athanasiadis 2004, p.156).

The rest of the tools, such as the corner pieces Lf.fw28, Lf.fw29 and Lf.fw32, the rolls Rf.fe12 and Rf.fw108 and the four small hand tools Hf.st23, Hf.st42, Hf.st58 and Hf.rs42 are stylized floral motifs of baroque inspiration. Such motifs are frequently found in several variants on Greek and eastern European bindings, as well as on western European bindings of the seventeenth and eighteenth century, although not so frequently in such rich and compact decoration as we have seen in this group.

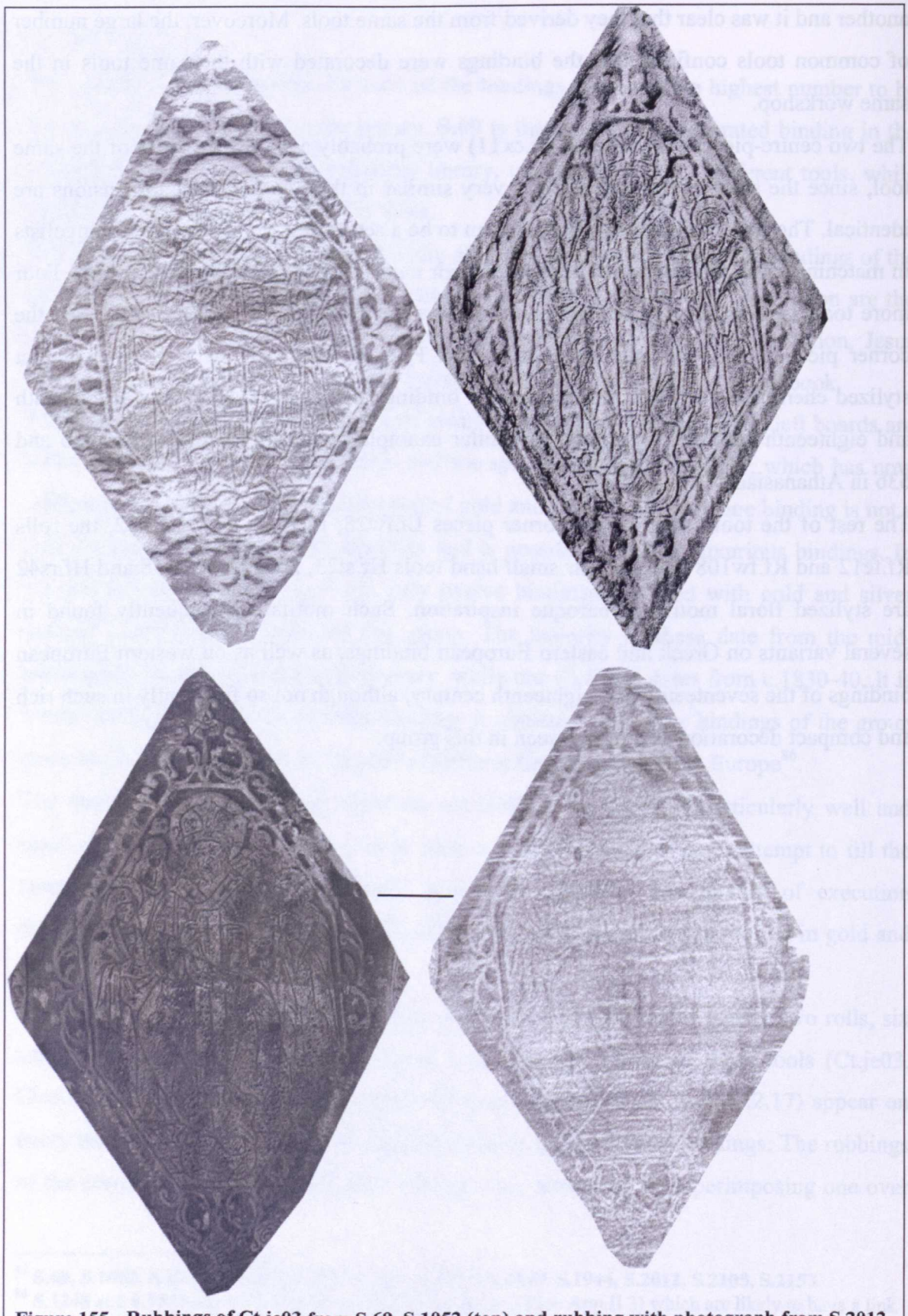


Figure 155 - Rubbings of Ct.je03 from S.69, S.1052 (top) and rubbing with photograph from S.2012.

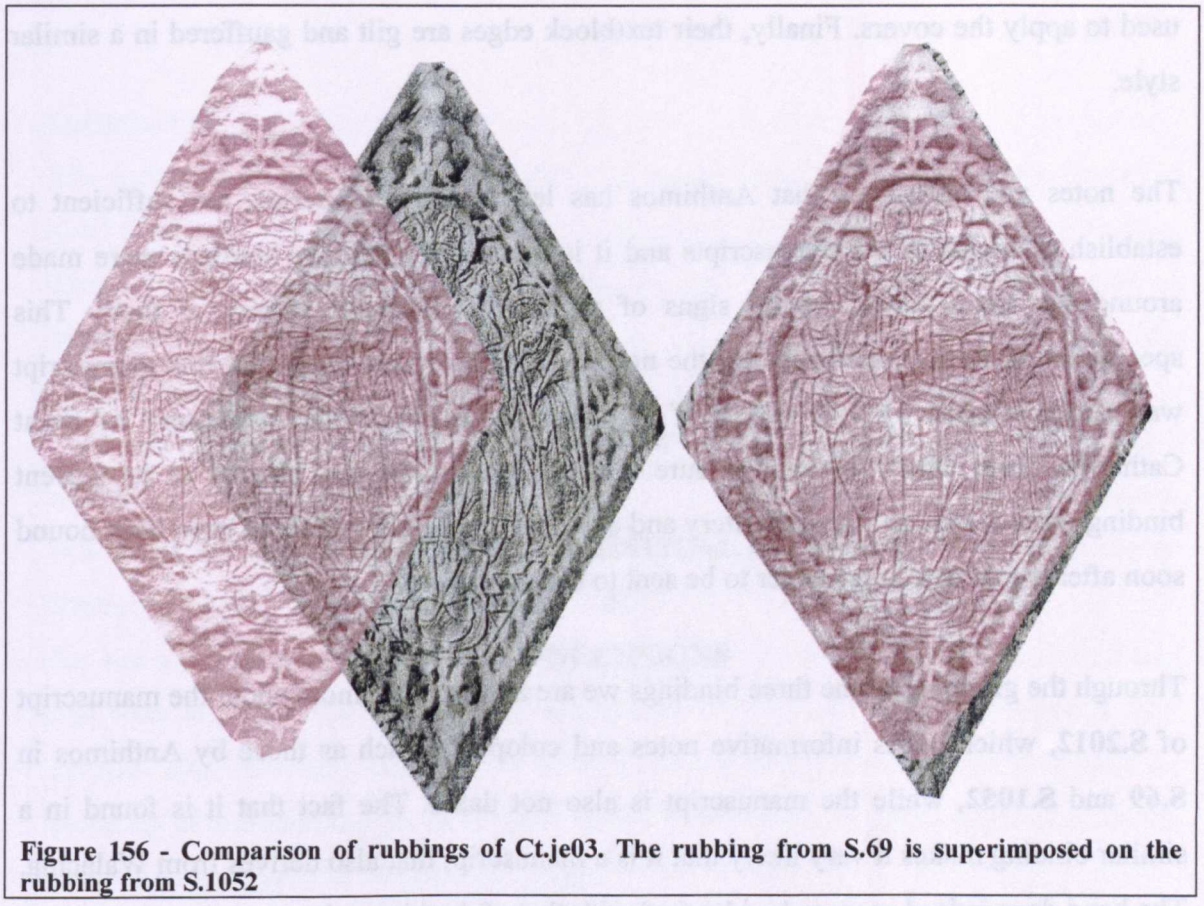


Figure 156 - Comparison of rubbings of Ct.je03. The rubbing from S.69 is superimposed on the rubbing from S.1052

3.2.7.5 Conclusions

In this group three bindings have been discussed, which are the work of one bookbinding workshop in Walachia. The manuscripts they contain are also from Walachia, written by the well-known scribe Anthimos from Ioannina around 1638-1641, who produced numerous copies of manuscripts as gifts from high-ranking Walachian commissioners.

This group consists of three bindings from the monastery of Saint Catherine. The bindings were evidently produced in the same workshop, as the identical gold and silver tooling confirms. Their rich and dense decoration, using 20 different finishing tools is unique in the monastery and it is evident that the scribe, or the person who commissioned the scribe used the same workshop for the bindings on his manuscripts. Their structural features are also very similar. The bindings are sewn on the same double cord supports and two of the bindings have identical stuck-on endbands, using the same threads. The same transverse spine linings are observed in all three of them, and the same damage effect appears on their similar leather covers, which suggests that the same technique and materials were

used to apply the covers. Finally, their textblock edges are gilt and gauffered in a similar style.

The notes and colophons that Anthimos has left in the manuscripts are sufficient to establish the dates of the manuscripts and it is most likely that the bindings were made around the same period, as no signs of rebinding are found in any of them. This speculation is further confirmed by the note in **S.1052,** which states that this manuscript was commissioned by a Voivode of Walachia as a gift to the monastery of Saint Catherine, from which we can be sure that the manuscript was already in its current binding when it reached the monastery and also that it was more likely to have been bound soon after it was written, in order to be sent to the monastery.

Through the grouping of the three bindings we are able to learn more about the manuscript of **S.2012**, which omits informative notes and colophons such as those by Anthimos in **S.69** and **S.1052**, while the manuscript is also not dated. The fact that it is found in a similar binding makes it very likely that it is a manuscript that also derives from Walachia. The hand does indeed seem to be identical with that of Anthimos; however an experienced paleographer is needed to confirm the provenance of the manuscript and to examine whether the script is in the same hand, or possibly by a scribe of the same school (see photo S2012f). However, since the binding is the first on this manuscript we can set a *terminus post quem* for the manuscript at c.1638-1641.

Two more bindings from the monastery of Iviron are likely to have been produced in the same workshop and it remains to be investigated if the numerous manuscripts of Anthimos preserved in the libraries of Greece are also bound in the same way.

PART 4

DISCUSSION, STATISTICAL EVIDENCE
&
CONCLUSIONS

Introduction

The survey of the bindings from the library of the monastery of Saint Catherine included 1195 bindings with decoration on their leather covers in the form of stamped tooling. These bindings provided the core material through which elements of decoration of bindings at the library were examined, and also the main way by which specific bookbinding workshops that produced groups of bindings were identified.

The bindings were inspected firstly in terms of their decoration. Rubbings of the tooled decoration were taken in the traditional way of transferring an impression with a pencil onto a piece of paper. These rubbings were later scanned to transfer them into digital format and every tool from each of the 1195 bindings was listed separately.

An electronic database was designed to manage the very large amount of material that had been collected, and this database became the primary tool by which rubbings were grouped and individual tools were identified. Subsequently, the database facilitated the grouping of bindings and the identification of 70 bookbinding workshops, each of which constitutes a group of at least two bindings.

The 70 groups represent a great part of the history of the library of the St Catherine's monastery. Nearly five centuries of bookbindings are recorded and mapped, which demonstrate the bookbinding activity within the monastery and the role of the monastery as a recipient of books from overseas. The major bookbinding traditions of each period are vividly represented, through numerous historical examples. Greek, Georgian, Islamic, eastern and western European bookbindings have been collected or created in the monastery and housed in the same library in the same way that the monastery has been influenced by the culture and traditions of each bookbinder who made the books shelved in the library of the monastery. As would be expected, in a multi-cultural monastery like Sinai, these traditions often blended and formed structures with unique hybrid features.

Not all of the 70 groups were examined in depth, mainly due to restrictions of time and space in the present thesis. Many of the groups were also not examined thoroughly due to lack of evidence in the books or in other archival sources, which might have revealed information about the background of a workshop, its provenance and/or the time in which

it was active. These last groups form the *un-attributable bindings* of the thesis (see below).

Seven further groups were not considered in depth because they have been referred to and examined meticulously as part of the pioneering work by Boudalis (2004), to which only additions to his list are provided with further manuscript bindings and occasionally some additional information on the dates and names of binders involved, when this information was available and appropriate. These are presented in Appendix I.

The 70 groups of bindings were divided into three categories: a) Bindings of Sinai, b) Imported bindings and c) Un-attributable bindings (see App.III). The un-attributable bindings, include groups of bindings where although it has been confirmed that the bindings in each come from the same workshop, it has not been possible to locate and/or date it. Therefore, any further investigation into the structure and style of features would not provide beneficial evidence with regards to the history and the provenance of the bindings and would not offer statistically useful data, at this stage. Their identification will nevertheless be important for future research, since bindings from other collections may reveal information on these that we are currently missing.

By dividing the groups into these three categories, two separate lines of evolution and the relationship between bookbinding and the monastery were drawn.

On the one hand, the bindings of Sinai portray the history of bookbinding activity within the monastery. It is demonstrated how bookbinding has been a tradition in the monastery for centuries and I have attempted to map this activity, with its peaks and lows, often according to the overall involvement of the monastery with cultural affairs, the presence of monk-scribes and the interest of specific abbots of the monastery on books.

On the other hand, the imported bookbindings are a means to understand and to measure which were the main points of influences for the monastery and with whom the monastery kept close relations at political and cultural level. The relation between the two groups - Sinai bindings and imported bindings – demonstrates also an interesting parallel: the extent to which the Sinai binders were influenced by what was imported into the monastery and what was prominent in the rest of the world at different periods.

15 groups of bindings have been investigated in total and discussed in this thesis. Eight of these are groups of bindings that were made at the monastery and seven are groups that were imported. In addition to the seven Sinaitic groups that were discussed by Boudalis (2004), there are seven more Sinaitic groups, seven groups of imported bindings and 34 groups of un-attributable bindings which are presented briefly in the appendices, but are left to be examined in future research.

The groups that were examined were selected based on two criteria:

a) the manuscripts in these groups included sufficient notes, colophons, watermarks and other types information that reveal the history and provenance of the books and the location of the bookbinding workshop.

b) they represent a period that is significant to the history of the library of the St Catherine's monastery, either by revealing the activities of the monastery in the making and renovation of books or with the accumulation of manuscripts.

As a result the groups that are discussed cover a period of approximately five centuries, from the fourteenth to the eighteenth century.

Finally, along with the outcomes from the examination of the groups of bindings, several features and statistical evidence are presented from the data recorded from the 1195 bindings. The evidence that follows summarizes the findings from the identified groups and concentrates on elements of the decoration of the 1195 bindings surveyed.

4.1 Bookbindings and workshops of Sinai

In his thesis Boudalis (2004) identified seven bookbinding ateliers between the fifteenth and the eighteenth century, which worked at or near to the monastery of Saint Catherine. These groups are some of the most prolific ateliers to have worked at the monastery. Kaligerou (2008) added one more group of Georgian manuscripts. This thesis has been able to identify a further sixteen workshops, which are likely to complete the list of workshops that worked at or were related to the monastery. There may be more matching Sinaitic bindings and workshops to identify, but as those bindings would probably be

undecorated, they cannot therefore be identified by the methodology used in this research.

A great deal of information has been accumulated through the study of the 5500 finishing-tool impressions on bindings in the library, but this is significantly complemented by the discovery of 40 original finishing tools, that are discussed at length in PART 2 of this volume. Their examination along with that of the 5500 tooled impressions has added valuable information to our knowledge of the techniques used, the types of tools, their application and distinctive features.

A summary of the findings is discussed in the following paragraphs.

4.2.1 Dates of workshops and their time-spans

The bookbinding activity in the monastery for which there is sufficient evidence concentrates in the period between the fifteenth and the eighteenth century. A few examples of earlier work survive too, but we lack sufficient proof to be able to date them. The bindings in *Group 61* and *73* have currently been placed with the un-attributable bindings, but they are very likely to be Sinaitic in origin and are most probably early bindings from the late thirteenth or early fourteenth century. However, further research on these is needed and hopefully new evidence will be found to confirm this speculation.

After the uncertain groups *61* and *73* of the late thirteenth or early fourteenth centuries, we find two major groups in the fifteenth century. *Group 27* includes eight Greek bindings on Arabic, Greek and Syriac manuscripts that were made at the monastery between c.1486-1510. *Group 31*, also referred to by Boudalis as the *"Antioch bindings"*[1], is a large group consisting of 60 bindings that were created between c.1469-1543. This group is the earliest identified in the monastery and was responsible for binding and mostly renovating older manuscripts in Arabic, Greek, Syriac and Georgian in the Greek bookbinding style. It is more than certain that at least two different bookbinders worked in this workshop either simultaneously or in sequence, which would also explain the long time-span of the workshop's activity. The majority of the tools used for decorating these

[1] Boudalis (2004, pp69-94) first identified this group with nine bindings. He refers to them as possibly having been made in Antioch. However evidence from the rest 51 bindings identified in this thesis confirm that these were made at the monastery of Saint Catherine, while the approximate life-span of the workshop is also confirmed.

bindings remained in this workshop throughout the 74 or more years in which it was productive, many of which passed on to other Sinaitic workshops in later times.
In the middle of the sixteenth century, other than *Group 31* which carried on its activity into the middle of the century, there are three more surviving groups: *Group 20 ("Klimis Binder group"), Group 34* and *Group 71*. The latter is linked to a workshop dated to circa 1520 that includes only three surviving bindings, on one Arabic and two Greek manuscripts, one of which is preserved in an Oxford (Bodleian library *Ms Barocci 141* – see App.I 22 and 2.2.12 on TOOL 12 from the finishing tool finds)[2]. *Group 20* is a group of 20 bindings, first identified by Boudalis as the *"Klimis"* bindings, based on the name inscribed on a tool impression. This workshop is dated c.1560. The structures are Greek in every feature yet they carry impressions of tools in both Greek and Italian styles. Similar characteristics are observed on the bindings of *Group 34,* made by another sixteenth-century workshop at the monastery. It consists of only five binding made in the Greek fashion, whose tools are clearly of Italianate influence. The date of this workshop is estimated roughly to be the first half of the sixteenth century.

The seventeenth century is certainly the most prolific century in terms of the number of workshops that appear at or around the monastery. 13 different workshops have been identified, some of which overlap and may have co-existed for short periods at the monastery. Only three of these groups (*Group 15, Group 25* and *Group 36*) are confirmed to have worked in dependencies of the monastery and not within its premises during the same period. As will be discussed in 4.1.4, it is probably the case that at certain periods, parallel bookbinding activity occasionally occurred inside the monastery. It is also evident from the following table that the monastery had a bookbinding workshop at almost all times throughout the century. Below is a summary of all the groups of the seventeenth century in chronological order:

[2] I am indebted to Mr.Andrew Honey, Senior Conservator of the Bodleian Library, for directing me to this binding, without whose help this identification would have not been possible.

Group	Date	Location	Number of Bindings
Group 14	c.1622	Saint Catherine	15
Group 16	c.1622-1655	Saint Catherine	55+4 printed volumes
Group 15	c.1633	Cairo	22
Group 30	c.1637	Saint Catherine	19
Group 39	c.1640	Saint Catherine	4
Group 36	c.1647	Raithos	4
Group 25	c.1648-1689	Raithos	22
Group 42	c.1659	Saint Catherine	3
Group 67	c.1664 to early 18th	Saint Catherine	5
Group 44	c.1664-66	Saint Catherine	17
Group 13	c.1665	Saint Catherine	3
Group 34	Possibly c.1617-1661	Saint Catherine	5
Group 68	Pre-1675	Saint Catherine	2

Table 4.1 - The Sinaitic groups of the seventeenth century, arranged in approximate chronological order

It is worth observing that the majority of the workshops have not left us with evidence to demonstrate long periods of bookbinding activity, but possibly only for a few years each. However, it is also the case that the majority of the groups lack sufficient notes and other evidence to prove a longer time-span of the workshops.

The eighteenth century was almost equally prolific in bookbinding production at the monastery, yet fewer workshops were responsible for this production. Between 1704 and 1727 there are 18 Greek manuscript bindings and three printed volumes that belong to *Group 57* that were bound by two monks at the monastery. *Group 18* is related to the workshop with the largest number of bindings surviving at the monastery. There are 67 bindings on manuscripts and at least another 25 bindings on printed books that I was able to identify. These bindings are dated to between c.1711 and 1790 and it is also evident that a number of different binders worked together in this group. *Group 4* is the next most productive workshop numbering 21 manuscripts and one printed volume bound in the twenty or so years during which it was active (1757-1777). It is apparent that this

workshop must have co-existed with *Group 18,* as it is also the case that several tools were used in common by the two workshops. Finally *Group 12* and *Group 22* are the only two other workshops of the eighteenth century with only few bindings identified in each (four and two respectively), the former not accurately dated and the later placed around 1779.

4.1.2 Earliest identified workshop at the monastery

Two groups which are likely to be the earliest identifiable workshops of the St.Catherine's monastery are *Group 61* and *Group 73.* They are both homogenous groups of five and two bindings respectively, both of which are also dated to the thirteenth century. However, what cannot be confirmed at current is whether these are indeed workshops of the monastery or whether these bindings were imported. The fact that all of the manuscripts involved are Arabic, bound in purely Greek style adds weight to a Sinaitic provenance, since the places in the Arabic-Christian world with Greek binding influences are somewhat limited outside the Sinai Peninsula. However, further research on these groups and the possible identification of matching undecorated bindings from the St Catherine's collection that have not been surveyed in this thesis could settle this argument either way.

The next earliest binding that has an approximate date and a confirmed Sinaitic origin is **S.742,** a composite manuscript of two Greek textblocks, one parchment and one paper, whose parts are dated to the tenth century and the late fifteenth century respectively. This binding belongs to *Group 27* and it was bound circa 1486-1510 (fig.157, also see 3.1.1). The evidence from this binding has helped to define the identified period of *Group 27* to c.1486-1510 and therefore to establish this workshop as the earliest known to have been active at the monastery.

Figure 157 - S.742, one of the earliest identified Sinaitic bindings, dated to c1486-1510.

4.1.3 New bindings or renovations?

A question that is raised by the dates of the workshops presented above is how to explain that great majority of approximately one thousand ancient manuscripts, dating from the seventh to the thirteenth century, are in bindings identified as having been made in workshops of the fifteenth-century or later. There are four likely hypotheses for this, thought it may be the case that all four are valid and that, to a certain extent, they occurred simultaneously.

1. The bindings that were made before the fifteenth century cannot be dated and hence cannot be identified with specific workshops. It is true that the number of notes contemporary to bindings that were found in what appeared to be bindings made earlier than the fifteenth century were almost entirely absent, which makes the process of identification of early workshops extremely difficult.

2. The bindings before the fifteenth century were less decorated, and if they were so, they omitted the use of representational finishing tools and preferred simple tools, such as concentric ring, straight lines, small dots and crosses, that cannot be used for definitive identification. This is the case with the majority of the prominent early bookbinding traditions that are related to and are influenced by Greek bookbinding, such

as the Syriac, Georgian and Armenian traditions. There are numerous such bindings in the collection, which have generally been excluded from the thesis, or which have been surveyed but have not led to the identification of workshops, due to insufficient evidence.

3. The earlier bindings with tooling have been so distorted and damaged that the rubbings taken from their impressions could not be of any use and therefore their identification was impossible. There are, for example, 423 rubbings of individual tools taken from approximately 280 bindings as part of the survey, which are classified as poor or unidentified rubbings (see Appendix IV for the terminology in the survey database) and their motifs have therefore not been useful for binding comparisons. Many of the 280 bindings have been identified based on the rest of the rubbings taken from them; however the 423 tool rubbings represent 7.9% of the total number of tool impressions recorded from the 1195 bindings. This figure demonstrates a relatively high degree of damaged covers.

4. The original bindings of the earlier manuscripts have been replaced by newer bindings made by workshops of the fifteenth, sixteenth, seventeenth and eighteenth centuries, in attempt to renovate the manuscripts when they were needed for the liturgical and personal needs of the monks. This last observation is probably the most influential factor for the small number of early bindings that survive. Several notes by binders of the groups investigated confirm that the manuscripts have often been renovated. Numerous other bindings surveyed that lack such notes still have clear evidence of rebinding and repair. Textblock spine-fold repairs, overcasting repairs, resewing, board re-attachments and certain types of added endleaves, are types of repairs that could not have been executed without rebinding the entire manuscript or at least without removing many parts of the original binding, including its cover. These types of repairs were particularly looked for in order to distinguish first bindings from repairs or complete rebindings.

Another issue that is raised in parallel with the above hypothesis is whether the large-scale binding activity of the sixteenth and seventeenth centuries is linked to an equally great period of scholarly activity in the monastery might have justified the need to bind new manuscripts that were written there.

We are aware of numerous manuscripts written at the monastery by Sinai monks from very early on. Already in the eighth century monk Michael of Sinai wrote the manuscript

S.32 at the monastery and in the following centuries, more and more Sinaitic scribes are recorded, until the eighteenth century. (Digbasani, 1992, pp568-569). To this end, the abbots of the monastery have often greatly contributed or supported this work, most notably Archibishop Ioasaph (1617-1660), Archbishop Ioannikios (1671-1702) and Archbishop Nikiforos Marthales (1729-1747), who themselves all wrote manuscripts or left notes that declare their interest in acquiring books (Digbasani, pp.573-583).

We need to look closer into the relationship between the newly-bound books from each workshop and the older manuscripts that each group repaired in order to determine the exact nature of the work of the Sinai binder /restorers. The statistics that are extracted and presented in the following graphs are revealing.

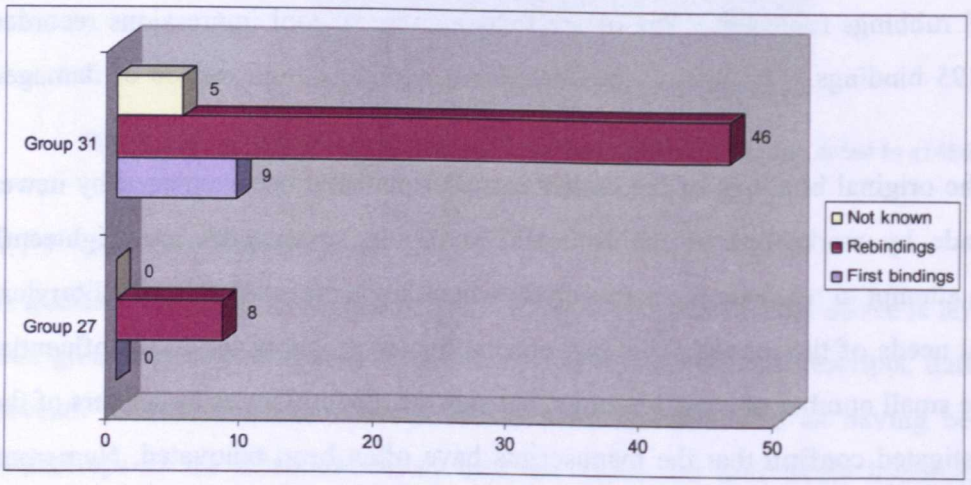


Figure 158 - Graphics showing the number of first bindings and re-bindings made by the workshops of the fifteenth century

The two groups of the fifteenth century have mainly been involved with rebinding work on older manuscripts, and the fact that 76.6% of the bindings of *Group 31* are re-bindings demonstrates that this was a common practice at the monastery from very early on.

In the sixteenth century, the bindings from *Group 30, Group 34* and *Group 71* display a similar phenomenon, with the rebound manuscripts outnumbering the first bindings.

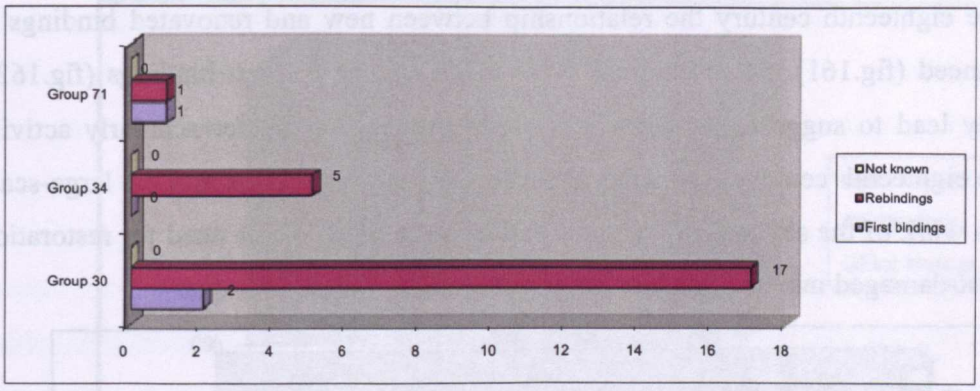


Figure 159 - Graphics showing the number of first bindings and re-bindings made by the workshops of the sixteenth century

As was discussed earlier, the seventeenth century was the richest in terms of the variety of bindings and the number of different workshops working at the monastery, as well as for the total number of bindings available for statistical purposes. The graphics below (fig.159) demonstrates clearly that the bookbinders of the majority of the workshops were mainly restorers rather than binders of new textblocks. From the 13 workshops identified 113 books were rebound and only 48 are new bindings (fig.160).

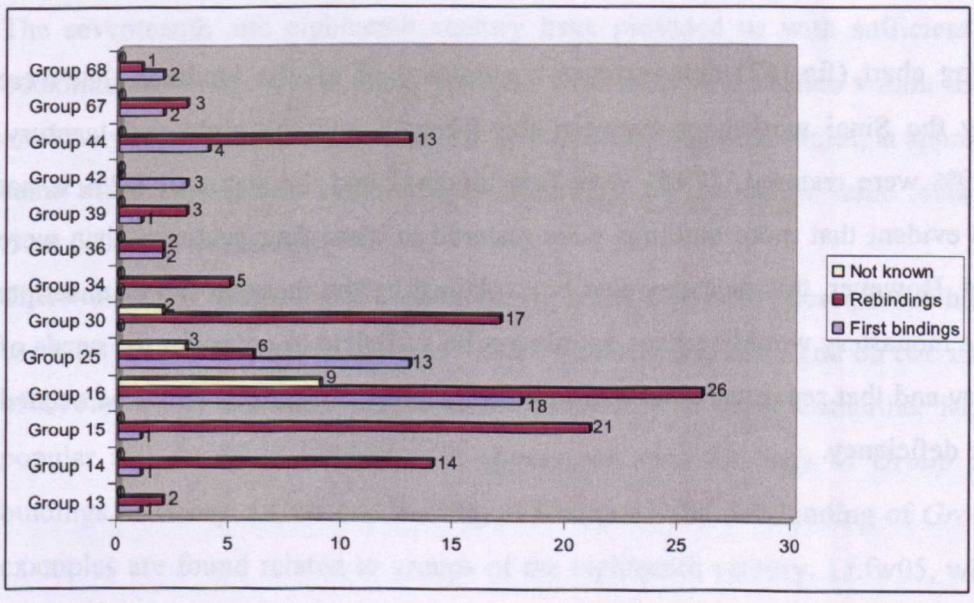


Figure 160 - Graphics showing the number of first bindings and re-bindings made by the workshops of the seventeenth century.

During the eighteenth century the relationship between new and renovated bindings is more balanced (fig.161). 54 re-bindings were made against 47 first bindings (fig.162), which may lead to suggest that there was either probably a greater scholarly activity during the eighteenth century compared to earlier periods, or perhaps that the large-scale renovation work of the seventeenth century had covered much of the need for restoration of the worst-damaged manuscripts that were still in use.

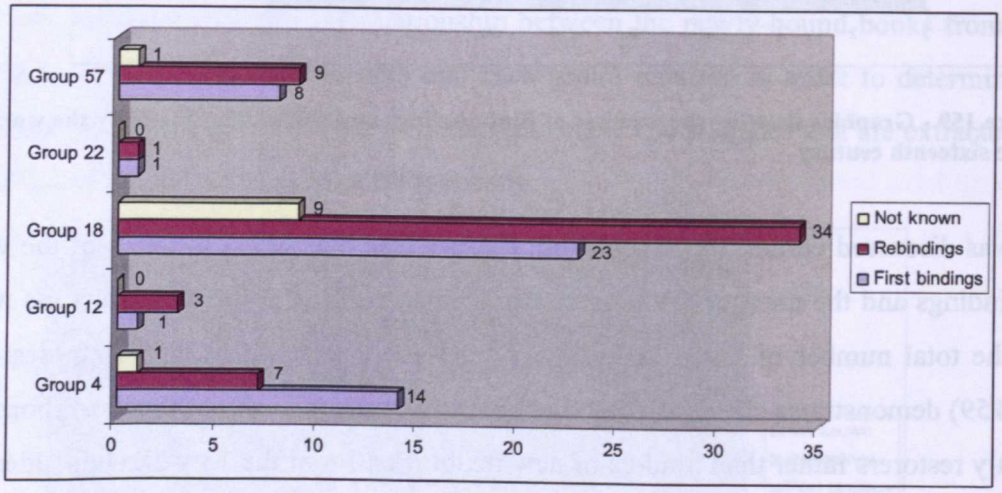


Figure 161 - Graphics showing the number of first bindings and re-bindings made by the workshops of the eighteenth century.

The following chart (fig.162) demonstrates a summary of all the bindings that were produced by the Sinai workshops between the fifteenth and the eighteenth century. Overall, 63.9% were restored, 27.8% were first bindings and the status of 8.2% is not known. It is evident that more bindings were restored in these four centuries than were newly bound. However, this fact may also be explained by the fact that the manuscripts written at the monastery would perhaps not always be sufficient to cover for the needs of the monastery and that repairing older and often imported manuscripts would be needed to supply the deficiency.

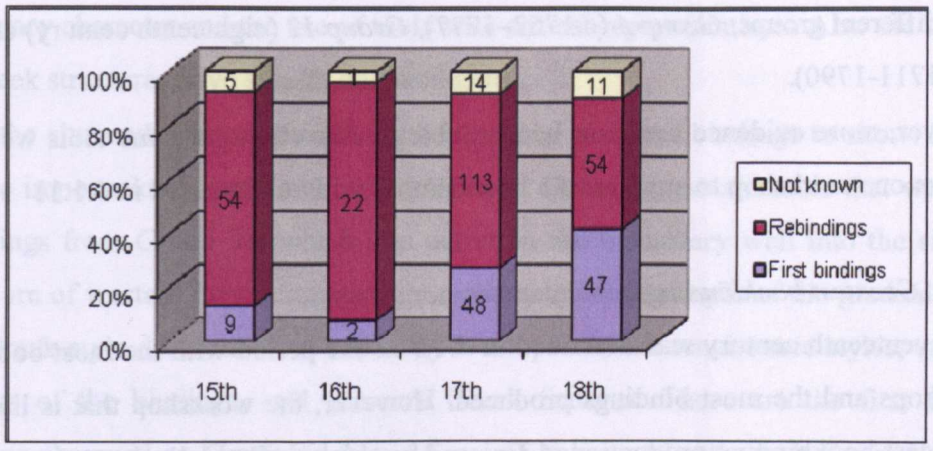


Figure 162 - Graphics showing the percentage of first bindings and re-bindings made by all the identified Sinai workshops between the fifteenth and eighteenth century. The numbers in the columns indicate number of bindings.

In conclusion, it is safe to say that one of the main reasons why original bookbindings from before the fifteenth century have not survived in large-enough numbers to help us identify pre-fifteenth-century bookbinding workshops is in great part due to repair and rebinding work.

4.1.4 Co-existence and inheritance of different workshops at the monastery

The seventeenth and eighteenth century have provided us with sufficient numbers of bookbindings to show that many different workshops were active within the monastery, or closely related to the workshops of the monastery's dependencies, at approximately the same time. This is best evidenced by observing the use of the same tools on bindings from different workshops.

There are a few examples of such tools. Ho.ao01, a stylized, floral, small hand-tool, was used in twelve bindings of *Group 15* of the Cairo dependency and on two more bindings of *Group 34* of the same period at the monastery of Saint Catherine. Rf.fw01 was a popular roll for Sinai binders as it appears on nine bindings of *Group 15,* on three bindings of *Group 14*, on one binding of *Group 42* and one binding of *Group 67*. More examples are found related to groups of the eighteenth century. Lf.fw05, which is TOOL 33 from the new finishing tool finds, is found on one binding from *Group 4* (c.1757-1777) and on two bindings of *Group 22* (c.1779). Rf.fw18 appears on three bindings from

three different groups, *Group 4* (c.1757–1777), *Group 12* (eighteenth century) and *Group 18* (c.1711-1790).

However, more evidence seems to be available to show that the same tools were passed on from one workshop to another of a later date, as will be discussed in 4.1.11

4.1.5 Greatest bookbinding activity at the monastery

The seventeenth century was described in 4.1.3 as the period with the most bookbinding workshops and the most bindings produced. However, the workshop that is linked with the largest bookbinding production is *Group 18,* which as Boudalis demonstrated (*"New Library" bindings*, 2004, pp.213-236) was linked closely with Nikephoros Marthalis, abbot of the monastery of Saint Catherine between 1728 and 1747. The addition of 53 more bindings to this group has also expanded our knowledge of this group and extended its time span to between 1711 to 1790. This group is characterized by the very similar style of its bindings, the large number of different tools (33 tools) used in several combinations but also by at least two different binders, as Boudalis was able to identify. The similarities they show suggest that they were made by binders who must have worked closely together, or as the approximately 80 year long time-span of the workshop may suggest, there is likely to have been a passing of knowledge from one binder to another, possibly involving more than one binder.

4.1.6 Styles of decoration

Through the nine Sinaitic groups that were discussed in PART 3.1, it is possible to summarize the most prominent styles of decoration that were used by Sinai binders.

Group 27 is a characteristic example of austere decoration on Greek bookbindings by monastic workshops, where few or, in some of the bindings in the group, only one tool is used repeatedly to fill the boards with decoration. The main tool used is a bird looking backwards, along with two more tools with lions. In accordance with the predominant decorative style of the period, all three tools have animal representations. This group is worth observing in parallel with *Group 2*, a group of eight imported bindings, likely to have come from the monastery of St Saba near Jerusalem, which have very close similarities in style with the bindings of *Group 27*, in that their decoration has the same

rudimentary character and the use of tools with animal representations. Also the bindings with Greek structures have similar characteristics.

During the sixteenth century the library has mainly imported bindings to show. Most of these are importations from Crete or South Italy. However, certain tools that were used on bindings from *Group 31,* which was active in the monastery well into the sixteenth century are of western inspiration and are a characteristic example of the gradual change of the Greek-style decoration and tendency to adopt western renaissance styles, while the structures of the bindings, still preserve Greek features. These are the first signs of influences observed on Greek binders in Sinai of Italian styles through Crete, Venice or other Italian ports.

The seventeenth century workshops display the same features of Italian-influenced decoration, as Boudalis was also able to demonstrate through the discussion of the *Giglio* and the *Klimis* groups. *Group 14* is also one such group, where four of its prominent floral, small hand-tools are motifs most probably of Italian origin and only one tool (Hf.ql01) may be linked to a Greek-Cretan inspiration. Moreover the bindings of this group have also adopted the western style of bookbinding, using sewing supports. In *Group 36,* the tools used also represent this gradual change. The prominent small hand tool with the double-headed eagle, a symbol for Byzantium, is also one of the favorite motifs on Greek bindings over several centuries. But around the middle of the seventeenth century, century, the date of the four bindings of Group 36, we see some of the latest instances of the use of this tool on Greek book covers. Furthermore, this tool here is combined with two clearly western-looking tools, including a roll which is another significant importation from Europe.

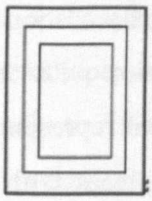
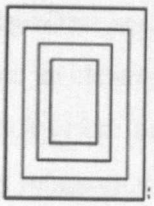
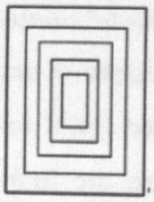
By c.1664, as we see in *Group 67,* these changes in Greek book decoration are already well-established. Centre-pieces are commonly used, in combination with corner-pieces and rolls with baroque, stylized floral tools and the typical animal representations have disappeared. At the same time, the first relatively-small centre-pieces with theological representations make their appearance, showing a gradual change of the points of influence and perhaps a greater relationship with the iconographical motifs that developed very much in eastern-European Orthodox areas. The centre piece Ct.vi04 (no.78) that is found on three bindings from *Group 13* is the earliest tool with theological

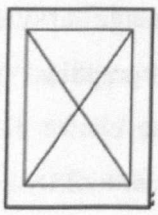
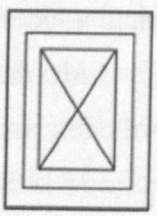
representations identified to have been used in the monastery, and it is only two decades later than the earliest dates at which we first see such tools used on bindings imported into the monastery from Walachia and the rest of eastern Europe, yet, it is clear that this change was slow. Italianate tools were still very much in use until the end of the century, as we see in *Group 68,* while in several bindings, Italianate and Baroque stylized tools were used in combination with the newly-adopted fashion for eastern representational and theological motifs.

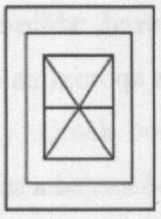
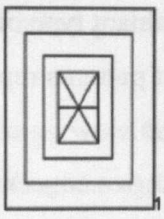
From early in the eighteenth century, the style of the Sinai bindings changed significantly. Centre and corner pieces became an essential part of their decoration, signifying the beginning of a decorative style that would prevail on most Greek books, even outside of Sinai, for the next two centuries. The centre pieces were mainly engraved with theological representations, while the corner pieces were with either theological or with stylized floral motifs. It is characteristic that in *Group 4* of c.1757-1777, five centre pieces, one corner piece and five different rolls were used, as opposed to only four small hand tools. It is also worth noting that large panels began to appear at the beginning of the eighteenth century. Only four panels have been recorded in the survey, three of which were used exclusively by the *Group 18* atelier (c.1711-1790) on a total of 28 bindings.

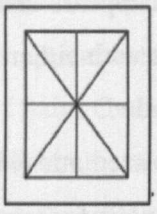
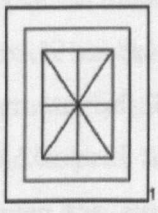
4.1.7 The predominant decorative layout patterns

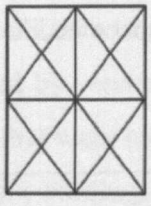
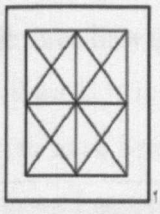
The layouts that are most commonly found on bindings that were made by Sinai binders can be grouped into seven main patterns.

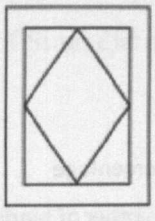
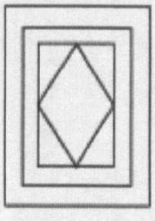
1. A2  A3  A4 

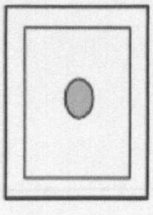
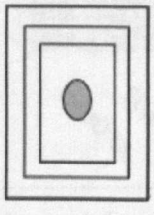
2. B2  B3 

3. B9  B10 

4. B12  B13 

5. C14  C15 

6. D3  D4 

7. J1  J2 

A2, A3 and A4 are the simplest and most common patterns recorded, on a total of 102 bindings, which had one or both of their boards with either A2, A3 or A4. The only difference between the three is in the number of concentric frames that are used, a figure which depends in most cases on the size of the books (i.e.

smaller books have A2 while larger books have A4). With this type of pattern, small hand-tools are often the predominant type of tools used, while rolls are also used around the frames. This group of patterns represents approximately a quarter of the 380 bindings with Sinaitic origin.

Patterns B2 and B3, with either one or two concentric frames and a saltire within the inner frame, are two of the patterns most frequently recorded on bindings of Cretan origin of the fifteenth and sixteenth century, yet it appears that binders at the monastery also preferred them. There are 91 bindings with either B2 (38) or B3 (53), which constitutes 23.9% of all the patterns recorded.

The third major group includes patterns J1 and J2, which used one (J1) or two (J2) concentric frames, often tooled with rolls, and where the use of a centre-piece is predominant. However, corner-pieces were not used, but small hand-tools are often used instead as corner-pieces, as well as to fill the space inside the inner frame and around the centre-piece.

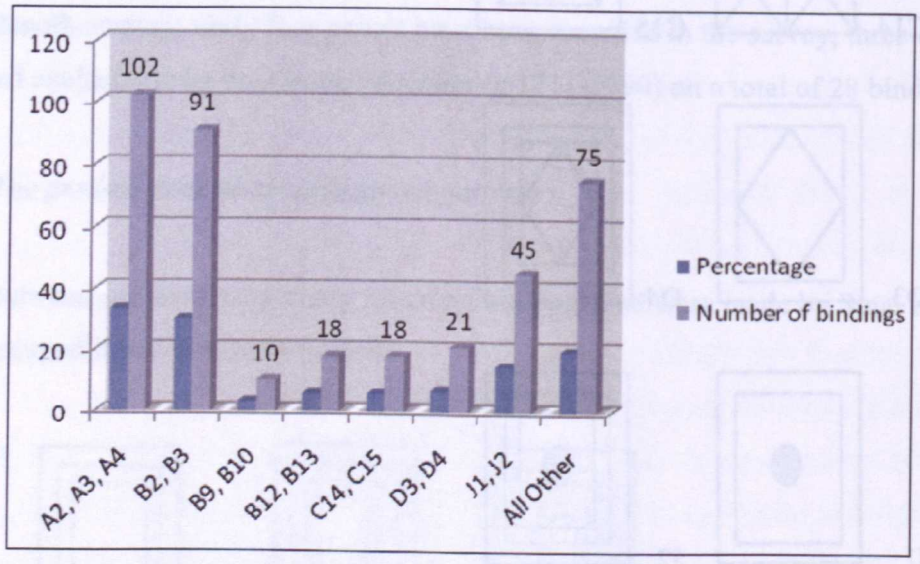


Figure 163 - Graphics showing the percentage of the predominant patterns recorded on Sinaitic bindings.

4.1.8 Decorative Techniques: blind, gold or silver tooling?

Traditionally, Greek bookbindings were tooled exclusively in blind. Gold tooling was introduced in western bookbinding through Islamic influences and through the ports of Italy during the fifteenth century (Hobson, 1989). At the monastery of Iviron, Mount Athos, Boudalis observed that by the first half of the seventeenth century, gold tooling had made its appearance on Greek bookbindings. Since Greek bookbinding, even at the monastery of Saint Catherine, gradually gave way to western techniques, as Boudalis was able to demonstrate, we would expect that gold tooling would theoretically become fashionable at Sinaitic workshops. However, this was not the case. Bookbindings made by Sinai binders, either at the monastery or at its dependencies in Cairo and Raithos were exclusively tooled in blind, even after the Greek techniques of binding were abandoned, to be replaced by western techniques. It is characteristic that from the 380 bindings on manuscripts that were identified to have been made by Sinai binders in the context of this thesis, only six bindings make use of some gold. More striking is that these attempts to apply gold were utterly unsuccessful and it is evident that gold-tooling was a technique the binders of Sinai did not master and in which they did not invest.

Figure 164 – The only gold tooling attempts by Sinai binders. From left to right on S.143 (*Group18)*, S.256 (*Group 12*), S.500 (*Group 16*), S.1008 (*Group18*), S.1543 (*Group 4*) and S.2109 (18th century?)

In a similar way, silver tooling never appears on Sinaitic bindings, nor does painted decoration or any combination of the above. Based on the above observations, any gold-tooled bindings that we find in the collection of manuscripts at the monastery necessarily importations from other sources. However, there may be few individual gold-tooled Sinaitic bindings that have not been identified as part of a group of bindings and are not identified as Sinaitic through the methodology of this thesis. Some bindings which might fit this description are 14 Islamic bindings on Greek and Arabic manuscripts[3] which make

[3] S.A.696, S.A.306, S.A.257, S.335, S.993, S.1046, S.1047, S.1049, S.1136, S.1558, S.1939, S.2013, S.2014, S.2247

use of gold or combinations of gold with blind tooling or with onlays. These bindings are not linked to each other in any way, and their source and provenance has also not been confirmed, but the fact that they are Christian Greek or Arabic manuscripts bound in an Islamic style binding makes it possible that they derive from a place with a Christian-Arabic presence such as the monastery of Saint Catherine. Further paleographical investigations might throw light on the provenance of these manuscripts and along with that to examine if there ever was a systematic use of gold for the decoration of Sinaitic bindings. If so, these would still be the exceptions to the rule.

The reason behind the absence of gold-tooling is not entirely clear. In the light of the fact that gold-tooling originated from the Middle-Eastern and North African Islamic culture one would expect Sinai binders who were geographically closer to these cultures to have come across the technique at an early date. What is more, the presence of the Islamic style bindings described above, whether they were made at Sinai or not, and of many Christian-Arab monks could be a source of influence, and it is curious that they did not leave their mark. As was discussed in 3.1.6 gold-tooling is a technique that is best executed in humid environments that allow the leather and the glair to retain its moisture for longer while tooling and facilitate the adhesion of the gold on the glair. The dry environment of the Sinai Peninsula which at times can reach as low as 7%RH might be one of the explanations why gold-tooling was not preferred there. Financial reasons may have also been the reason why it was not used, as gold leaf has always been a large expense for any bindery. Considering that the majority of the bindings made at the monastery were made for the local needs of the monastery or for personal use by the monks, there was little commercial value that gold-tooling might add to a binding.. If bookbinding may have been a profitable activity for certain workshops, it seems that gold-tooling would not be a necessary embellishment for bindings intended for everyday use.

4.1.9 Types of tools

The types of tools recorded on bindings of Sinaitic origin include the whole range that is found on Greek, western and Islamic bindings. Naturally, these also reflect the different influences to which the binders of Sinai were exposed at different periods, as has already been discussed in 4.1.7.

Panels were introduced at a late date at the monastery. The three different panels that have been identified as having been used in Sinai are recorded from a total of 23 bindings that date from the beginning to the end of the eighteenth-century, mainly belonging to *Group 18*. Centre-pieces were slightly more common and also appear earlier. 25 different centre-pieces are recorded from the beginning of the seventeenth-century until the end of the eighteenth-century on 58 bindings in total, though it must be remembered that in most cases at least two different centre-pieces would have been tooled on one binding. Surprisingly, corner pieces were very rarely used. There are only eight different corner pieces, within which there are two pairs of mirror-image corner-pieces. Moreover, we are able to distinguish that one of these pairs was engraved on the two sides of the same tool, as the tool survives among the finishing tool finds. Only 16 bindings have been tooled with a corner-piece, the earliest being either **S.73, S.295** or **S.696**, all three belonging to *Group 67* (c.1664 to early eighteenth-century). Rolls were more widely used than centre-pieces and corner-pieces. 42 different rolls have been recorded on 124 Sinaitic bindings. Rolls were used at the monastery from c.1530-1577, when Rf.fw68 (fig.8) appears on **S.1344**, until the end of the eighteenth-century, though the seventeenth century is when the most frequent use of rolls is observed. Small hand-tools were, as expected, used in larger numbers. 227 different small hand-tools have been recorded from their impressions on 346 out of the 380 Sinaitic bindings. The remaining 34 bindings do not have small hand-tools impressed on their covers.

Figure 165 - Rf.fw68, the earliest recorded roll on a Sinaitic binding

The above evidence is summarized in the following graph, in which we may also observe the periods during which each type of tool was more prominent.

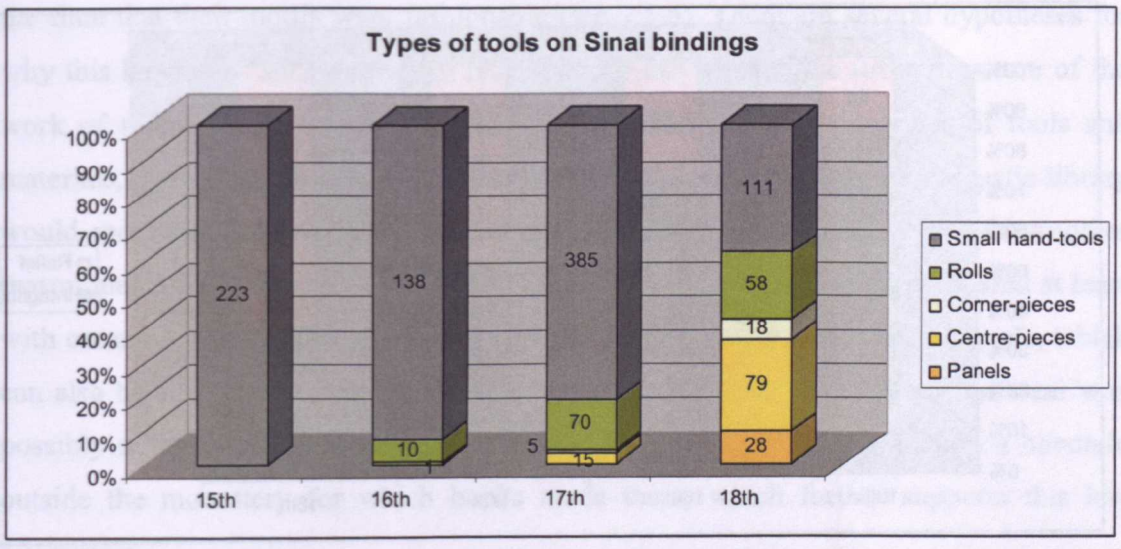


Figure 166 - Graphics showing the percentages of the types of tools used on bindings made at Sinai between the fifteenth and the eighteenth century. The numbers in the columns indicate the number of individual tool impressions recorded.

4.1.10 Intaglio - relief

The distinction between intaglio and relief tools in western bookbinding centres is a characteristic feature. During the period of blind-tooling, tools in the west were cut both intaglio or in relief. Szirmai (1990, p.249) confirms that in the early days of gold-tooling both types carried-on to be used; however, soon the tools intended for gold-tooling were cut in relief.

Gold-tooling was never a concern for the Sinai binders, as was discussed in 4.1.8 and their tools were therefore not chosen or made with this in mind. While intaglio tools in the west gradually became rarer, in the workshops of Sinai the decline was less pronounced, possibly also influenced by the fact that many tools were used for a long time, as is discussed in 4.1.11.

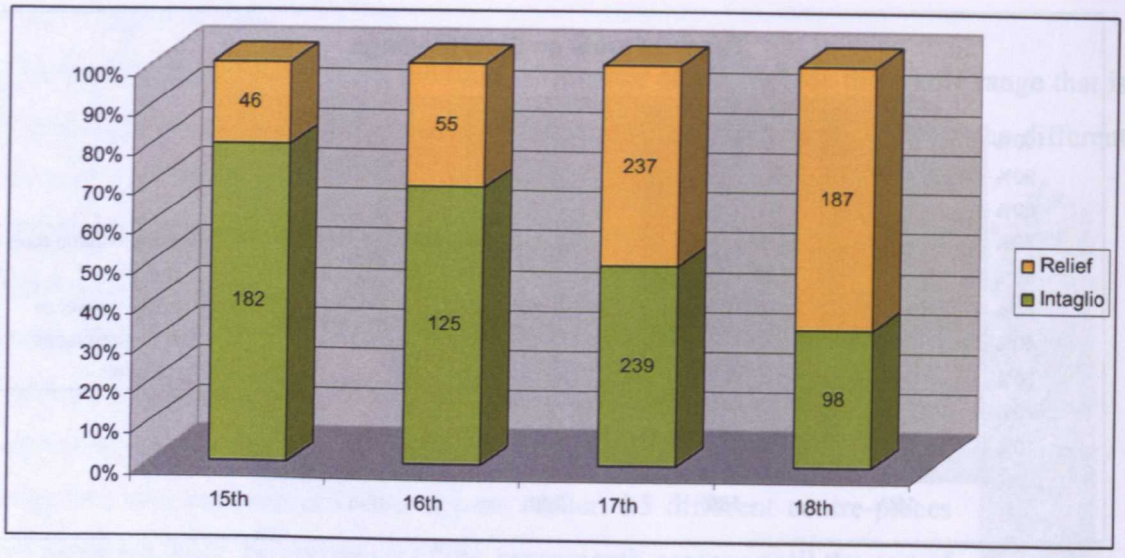


Figure 167 – Graphics showing the percentages of intaglio and relief tools used on bindings made at Sinai from the fifteenth to the eighteenth century. The numbers in the columns indicate the number of tools.

4.1.11 Time-span of finishing tools

The length of time that individual tools were used was not necessarily confined by the active life of one workshop. During the course of this thesis several tools have been discussed which appear on more than a single workshop and on bindings of widely different dates. This type of evidence was first observed when discussing the finishing tool finds, where tools were identified on bindings made up to 200 years apart. Some of the longer-used tools are the small hand tools TOOL 2 (Ho.kn09), TOOL 5 (Hf.fl01) and TOOL 15 (Ho.ao55), while there are also two rolls with an equally long use, TOOL 19 (Rf.fw01) and TOOL 23 (Rh.pr01). Other tools, that were not among the finds but were also in use for long periods, are Ha.dr02, a dragon tool that is found on 20 bindings from the end of the fifteenth century until c.1669, and Hf.st215, a floral tool in use from the late fifteenth century to c.1661. These are some of the most extensively used tools,[4] both for the length of time they were used but also for the number of bindings they appear on. As a result, many of these tools were often used long after they were created and beyond

[4] The complete list of all the tools recorded from Sinaitic, imported and unidentified bindings, along with the dates that each tool is used is given in volume 2 of this thesis *"A Coprus of the finishing tools from the manuscript collection of the Saint Catherine's monastery library"*, of this thesis.

the time that their motifs were fashionable (see 2.5.5). There are several hypotheses for why this happened, such as lack of resources for the binders, the difficult nature of the work of monks at the monastery who often worked with the minimum of tools and materials, or possibly the fact that books intended for monastic use in a monastic library would most probably not have needed contemporary and fashionable motifs. Another reason may also be that the low productivity of the monastic binderies, compared at least with commercial binderies, may not have been as great as to wear out their tools, which can also be confirmed by the tool finds. The need to replace tools because of wear was possibly non-existent. As was discussed in 2.5.5, there was unlikely to be a clientele outside the monastery for which books made there, which further supports this last hypothesis.

4.1.12 Techniques of applying the finishing tools

The observations on the techniques used by Sinai binders for applying the finishing tools derive mainly from the finishing-tool finds. Certain features are highlighted in a few bindings.

In Part 2 eight wrought-iron and copper-alloy small hand tools were described, which have clear evidence that they were made to be hammered onto a book cover, rather than pressed by hand. This is suggested by their shanks which are shaped with a blunt end or a protruding flat head, and have marks of heavy hammer blows on the ends. It is clear that they were never intended to have a wooden handled. These tools would not have been heated but impressed cold by hammering, relying on the good receptive qualities of damp leather. We are aware of similar techniques used by binders for the decoration of Ethiopian book covers (Pankhurst, 1992), who hammered their engraved stamps made of layers of hard leather glued together. Up to now this has been established as a technique more related to the decoration of saddles or decorative leatherwork on objects other than bookbindings. Conroy (2002) was right to suggest that it would also have been a natural bookbinding practice, particularly before the introduction of gold tooling, when binders would have had to have heated their tools. Haldane (1983, pp.7-19 observed this to have been true of Islamic bookbindings, but the finishing-tool finds discussed in this thesis are

the first to prove beyond doubt, that this technique was used on Greek bookbindings and, by extension,western-style bookbindings made by Greek binders.

As discussed in chapter 4.1.9, gold tooling was not a technique in favour with the Greek binders at the monastery; hence, it was not a required to heat their tools to achieve an impression. Nevertheless, tools were on certain occasions used hot when blind-tooling on bindings of the seventeenth and eighteenth century, which can be shown by the scorching of the leather and the burn marks created by overheated tools on a few Sinaitic bindings and just a darkening effect on others (see 3.1.4.4 – *Group 14* and 3.1.6.4 – *Group 4*). Centre-pieces and corner-pieces may have been either hammered or used in by a press. Unfortunately, we do not have any evidence, such as the discovery of a press, to confirm which of these two techniques might have been used.

4.1.13 Provenance of tools

There is a significant lack of archival material available that mention sources of bookbinding materials for workshops of the monastery. We can therefore only guess where the tools may have come from based on their stylistic resemblance with others of the same period. However, the finishing tool finds have also provided some insights into this question. With a large amount of bookbinding activity at the monastery during certain periods it is reasonable to suggest that some tools may have been produced at the monastery. What is more, the remnants of an old forge that exist in a basement room in the monastery further support this hypothesis, since the facilities and knowledge of metalworking must have been available to the monks.

Three tools, TOOL 1, TOOL 20 and TOOL 22, seem likely to have been produced at the monastery (see 2.5.3), based on the fact that TOOL 1 is a roughly forged and home-made tool with a motif of Moses and the Burning Bush, an iconographic representation that is related very closely to the monastery of Saint Catherine, while it is a tool that was most probably not made by a professional engraver. TOOL 20 and TOOL 22 are two rolls, one of which is a copy of one another. Tool 22 is an unsuccessful and probably unused cast copy of Tool 20, seemingly made of the same alloy as Tool 20. It is only reasonable to consider were these tools manufactured at a metal workshop outside the monastery that

an unsuccessful cast copy would not have been sent together with a nearly identical and good copy.

Other than these three tools which are possibly local products, the rest of the discovered tools and all the tools identified through their impressions on the manuscript bindings have an unknown provenance, but are more likely to be imported from established centres of metalwork and bookbinding. The places from which the monastery must have imported tools were likely to have changed according to its different political and cultural circumstances. It is evident for example that the majority of the tools used by the Sinai binders in the fifteenth century have a distinct Greek character, possibly still keeping in touch with their Greek influences from the declining Byzantine empire and most certainly with a great centre of book production and bookbinding, such as Constantinople. During the sixteenth and seventeenth century, after the fall of the Byzantine Empire, the motifs of the tools have a strong Italianate character, in step with the increased connections of the monastery with Venetian-occupied Crete via its dependencies on the island. Tools such as Lo.ao01, Lo.ao02, Lo.ao3, Lo.ao05 and Lo.ao06 are characteristic examples of corner-pieces of Italian provenance with arabesque motifs that became very fashionable during the first half of the sixteenth century. These tools however appear equally on western and Greek binding structures of the first half of the sixteenth century, which demonstrates the influence that Italian bookbinding and Italianate motifs had on Greek binders.

An example of this is Tool Hm.is01, which is a tool with the Greek initials "I C". It appears on four bindings of *Group 49* that have clear western structures but also on the two Greek bindings, **S.1334** and **S.2030**. This evidence suggests a relationship with a Greek clientele or a Greek binder but it could also be the case that this is a tool that passed on from one binder to another or that the same binder was capable of binding adequately in both Greek and Italian styles.

In the eighteenth century, however, the tool motifs change considerably in style, along with an overall change in the types of tools used, such as the representational centre and corner-pieces instead of small hand-tools. This change coincides with the gradual shift of the monastery's affairs from Crete, after its fall to the Ottoman Empire in 1669, to

Walachia and the Balkan states, where its dependencies then started to flourish. It is significant that many corner pieces, particularly those with representations of the four evangelists, have the names of the evangelists inscribed in Slavonic, suggesting their Eastern European provenance.

4.2 Imported bindings

In addition to the bindings that were made by Sinaitic workshops, this thesis has examined seven groups of bindings that were imported into the monastery and which represent an important part of the history of the monastery and its relations with the outside world.

A total of 123 bindings have been identified as coming from a workshop outside Sinai and brought to it at a later date. These workshops, the locations of which have been identified more or less accurately, date from the fifteenth to the eighteenth century.

4.2.1 The main sources of manuscripts and bookbindings

Identifying the location of the workshops where many bindings in the St Catherine's monastery were made is significant not only for the history of the library as it relates to the monastery, but also because it relates to the main centres of production and copying of manuscripts, from which the monastery obtained them for its library or for the personal needs of monks.

The seven groups of imported bindings that were presented in Part 3, as well as seven more groups that are briefly described in Appendix II, demonstrate that there were four main sources of books for the monastery, which also seem to correspond closely to specific periods.

- Areas of the Middle East, such as the monastery of Mar Saba, Syria and Antioch seem to have been the source for manuscripts and bindings during the fifteenth century. *Group 2* is a characteristic group of bindings, which dates from the end of the fifteenth century, and is most probably related to the monastery of Mar Saba. The "*Antioch bindings*" which were discussed by Boudalis (2004, pp.68)

also demonstrate that many manuscripts were written in Antioch or Gaza and were brought to the monastery of Saint Catherine soon after their completion, although, as discussed in App.I 12, these manuscripts were later rebound at the monastery.

- Crete was the most significant source of manuscripts imported into the monastery between the end of the fifteenth and the mid-seventeenth century. Six groups have been identified that are related to Crete : *Group 29* (1465-1514), *Group 33* (c.1529), *Group 28* (1530-1577), *Group 41* (1544-end of the sixteenth century), *Group 49* (c.1544) and *Group 24* (1658-1661, App.II 8). These groups include a total of 75 bindings, many of which are also on manuscripts that were written in Crete as well as being bound there. What is worth noting is the considerably smaller amount of bindings produced at the monastery during the sixteenth century, compared to those imported from Crete during this period. Instead, it appears that Crete was the main source of manuscripts for the monastery and possibly manuscripts produced at the monastery would also occasionally be send to Crete to be bound. This is demonstrated in *Group 28* by **S.87**, a manuscript that was written at the monastery in Sinai by a Cretan monk, yet was taken to be bound soon after its completion in a workshop that can be shown to have existed in Crete (3.2.4). It has been established that the role in the dependencies of the monastery in Candia and elsewhere in Crete played a significant role for the economic, diplomatic and cultural life of the monastery. Perhaps, it may be assumed from the above evidence that during the sixteenth century these dependencies also provided most of the manuscripts that were needed for the liturgical and personal needs of the monks. As a result the need for local production of manuscripts, and hence the need to have bookbinding workshops, was limited. Further paleographical investigation on the provenance of sixteenth century manuscripts in the library and the examination of local manuscript production are needed to confirm this fact, but based on the bookbinding evidence, it appears that considerably more books were imported already bound from Crete than were bound locally at the monastery in Sinai.

- South Italy is possibly the provenance of nine bindings identified as *Group 1* in this thesis, although currently there is not enough evidence to prove this beyond doubt. These bindings are very similar in structural and decoration to Cretan bindings of the same period (the first half of the sixteenth century) and it is possible that they were bound in Crete. How these bindings arrived at the monastery is also difficult to establish. Even if a South Italian provenance is confirmed by further research, it may still be the case that these bindings came to the monastery through Crete and not directly from South Italy.
- Northern Greece and Walachia were the source of books, for the greater part of the seventeenth and the early eighteenth centuries. Following the siege and fall of Crete to the Turks in 1669, that once vital economic and literary centre ceased to exist and the monastery turned to the support of its dependencies and its benefactors at the Danube states and sought for other sources for manuscripts either there or in Northern Greece, where manuscript production flourished. This is demonstrated by the many manuscripts that were written there and in many cases dedicated by their scribes or those who commissioned their production, directly to the monastery in Sinai. There are 35 bindings in total that further support this claim, which fall into six groups.

  Group 3 (c.1715-1724), *Group 5* (1680-1692), *Group 9* (c.1673) and *Group 17* (c.1675-1691) are four groups which relate to each other based on certain structural similarities and common finishing tools. In addition, a number of bindings in these groups is related to the well-known scribe Cosmas Makedon, who lived in Mount Athos in Northern Greece (see App.II 3 to App.II 6 on these groups, and Boudalis 2004, pp.306-323). One other workshop, which produced the bindings of *Group 21,* was most probably based in Walachia and is related to an important school linked with the scribes Matthaios Myreon and Bishop Lucas Bozeos.

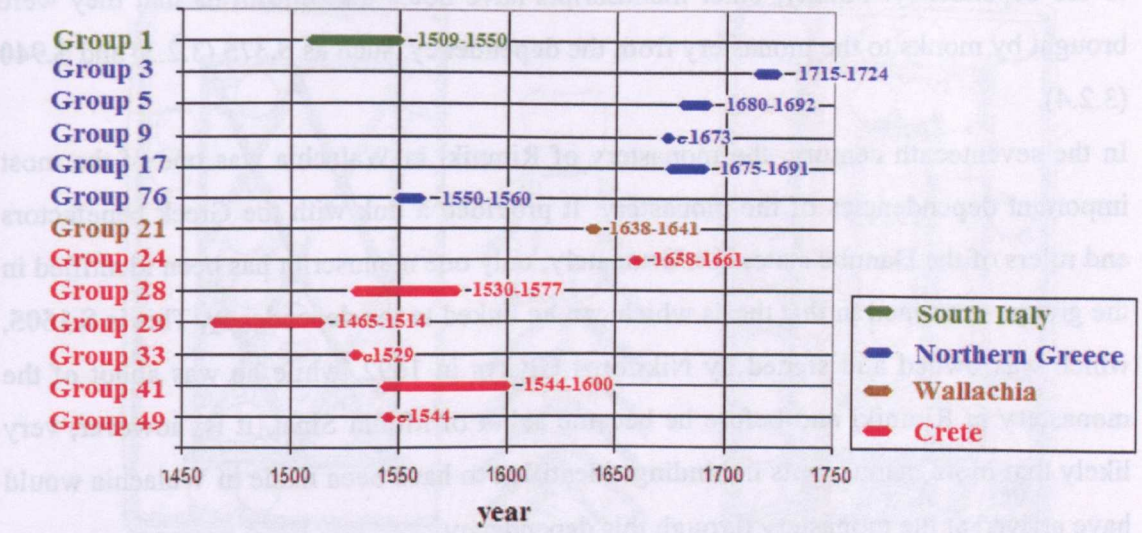


Figure 168 – Graph showing the spread and provenance of workshops that were responsible for binding groups now found in the St Catherine's collection.

4.2.2 The links of the monastery with the dependencies and how this is portrayed through imported bindings

The dependency of the monastery in Crete was undoubtedly one of the vital sources of financial support for and influence over the monastery for many centuries, but particularly in the period between the fall of Constantinople in 1453 and the fall of Crete in 1669 to Turkish rule (Fragkouli 1998). The imported bindings, as described in 4.2.1, that come from workshops in Crete during the sixteenth century are numerous and are even greater in number than those produced at the monastery, a fact that demonstrates the monastery's strong connection with the island. Its dependency in Candia was certainly the strongest link that the monastery had in Crete and in certain instances it has been possible to show that manuscripts that were brought to the monastery came through the dependency.

37 manuscripts are known, through scribal or other notes, to have been completed in Crete (Spanos, 1998, p.5), some of them by monks at the dependency, such as **S.588** (3.2.2). Gerasimos Yalinas was a monk of the monastery's dependency in Candia and a prominent figure who was himself a scribe, who wrote 11 manuscripts surviving in the library (App.II 8), and also signed ownership notes on a few others when he was a monk at the dependency (3.2.2). It seems probable that they may have belonged at some point

to the dependency. Finally, other manuscripts have notes that inform us that they were brought by monks to the monastery from the dependency, such as **S.375** (3.2.3) and **S.940** (3.2.4).

In the seventeenth century, the monastery of Rimniki in Walachia was one of the most important dependencies of the monastery. It provided a link with the Greek benefactors and rulers of the Danube states. Unfortunately, only one manuscript has been identified in the groups examined in this thesis which can be linked to the dependency. This is **S.1505**, which was owned and signed by Nikiforos Glykys in 1692, while he was abbot of the monastery in Rimniki and before he became abbot of Mount Sinai. It is, however, very likely that more manuscripts in bindings identified to have been made in Walachia would have arrived at the monastery through this dependency.

4.2.3 Influences of imported bindings on Sinai bookbinding work

In an attempt to establish the influences on the Sinai binders, it is interesting to see whether the bookbinding that was carried out in the monastery reflected the bindings that were brought to it from elsewhere. Although such influences may not have been derived only from imported books, but also on the experience of the binders, where they came from and where and from whom they received their training, it does show how up-to-date the work of the binders was at the monastery.

This is best observed by comparing the similarities between groups of bindings from the monastery with imported ones of the same period in terms of structure and decoration. Four such comparisons are of interest:

a) *Group 2 ("Mar Saba bindings")* and *Group 27*

These two groups date from the last quarter of the fifteenth century. They consist of Greek binding structures with austere appearance and similar decorative elements. All bindings in both groups are tooled in blind mainly with one tool each of a bird looking backwards (Group 2) or a lion looking backwards (Group 27) impressed repeatedly all over the covers.

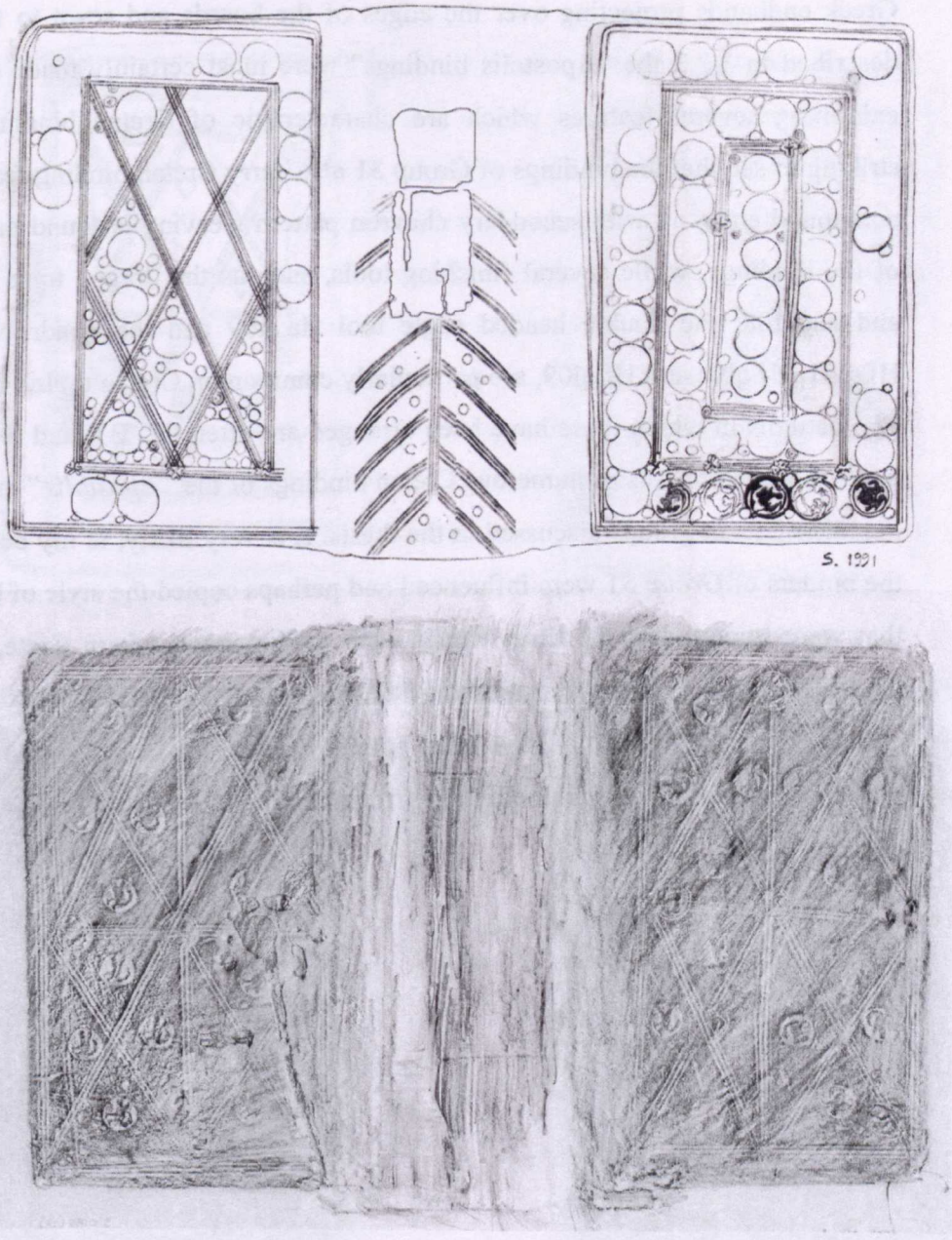


Figure 169 - The decorative layouts of S.1991 -Group 2 (top) and S.Syr196 - Group 27 (bottom)

b) *Group 29 – "Apostolis bindings"* and *Group 31*

These two groups date from the end of the fifteenth century to the first half of the sixteenth. The most pronounced similarities of the bindings in these groups are found in their structural features, since these are all Greek bindings, with unsupported sewing, wooden boards which are cut flush with the textblock and

Greek endbands projecting over the edges of the boards and sewn to them. As described in 3.2.3 the "Apostolis bindings" were most certainly made in Crete, exhibiting several features which are characteristic of Cretan bindings. It is striking to see that the bindings of Group 31 also carry Cretan binding features. A compound endband with secondary chevron pattern weaving is found on several of the bindings, while several finishing tools, such as the dragon tools Ha.dr06 and Ha.dr08, the double headed eagle tool Ha.et09 and the quadrilobe tools Hf.ql01, Hf.ql02 and Hf.ql09, are particularly common on Cretan tooled bindings. The patterns in which these have been arranged are often B2, B3, and B4, which have been the patterns of numerous Cretan bindings of the *"Apostolis"* group and the other Cretan groups discussed in the thesis. It is very likely, in my belief, that the binders of *Group 31* were influenced and perhaps copied the style of bindings that were imported at the time, which were predominantly from Crete, as was discussed in 4.2.1. However, we should not rule out the possibility that some of the *Group 31* bindings may have been bound by a Cretan binder residing at the monastery or by someone trained in the Cretan bookbinding tradition.

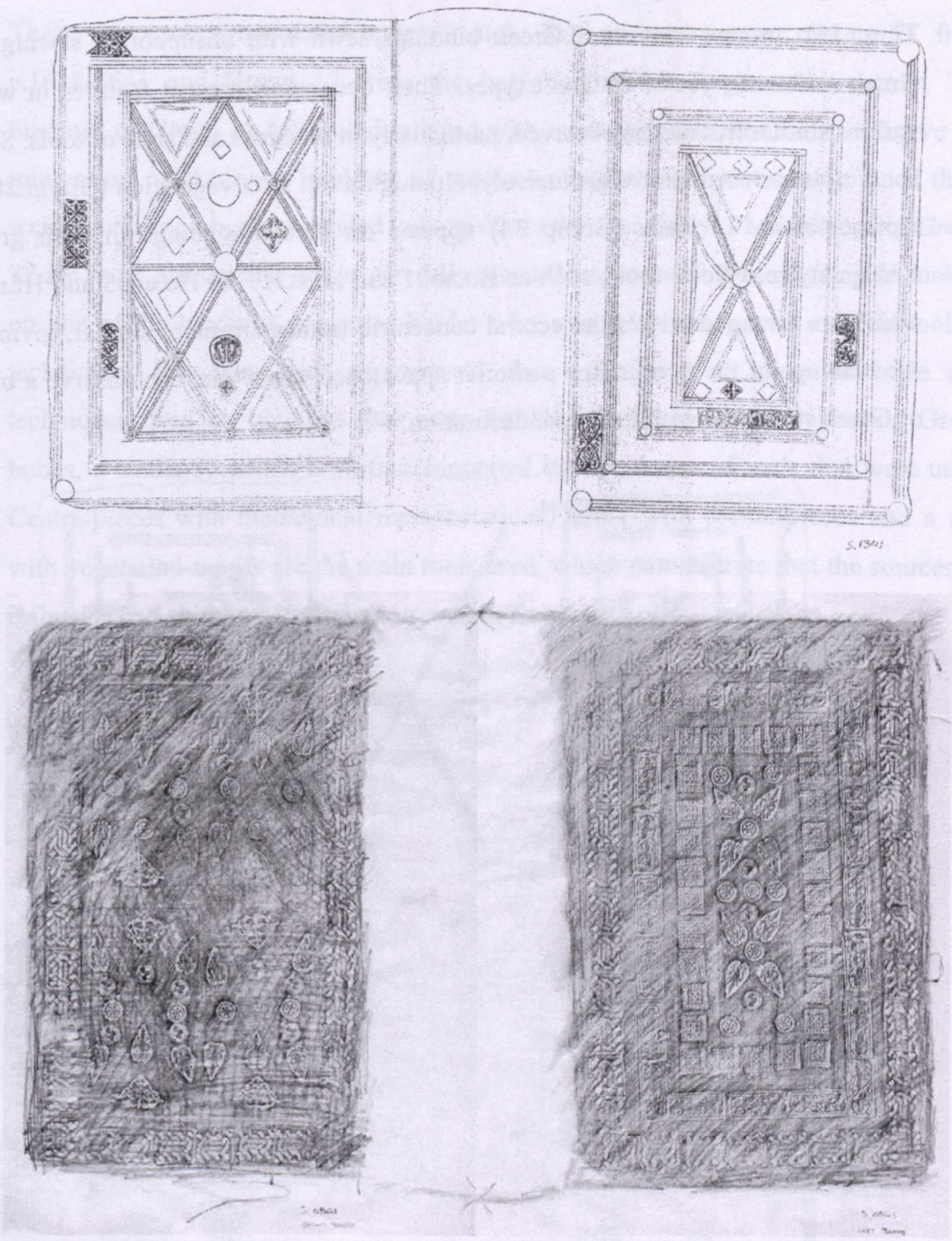


Figure 170 - The decorative layouts of S.1341 -Group 29 (top) and S.561 -Group 31 (bottom)

c) *Group 28* and *Group 34*

These two groups consist of Greek bindings sewn with unsupported sewing and Greek endbands, yet of different types. Their decoration present features in which various similarities can be observed, particularly in the types and style of tools. Small hand tools are used almost exclusively, although a roll with vegetation (Group 28) or representations of birds (Group 34) appears on certain bindings in each group. Certain stylized floral tools, such as Ho.ao01 and Hf.st217, or Ho.ao03 and Hf.rs29, which are arranged within the central concentric frames are more similar, giving to the bindings of the two groups a similar appearance where one can observe a blend of Greek structures with Italianate decoration.

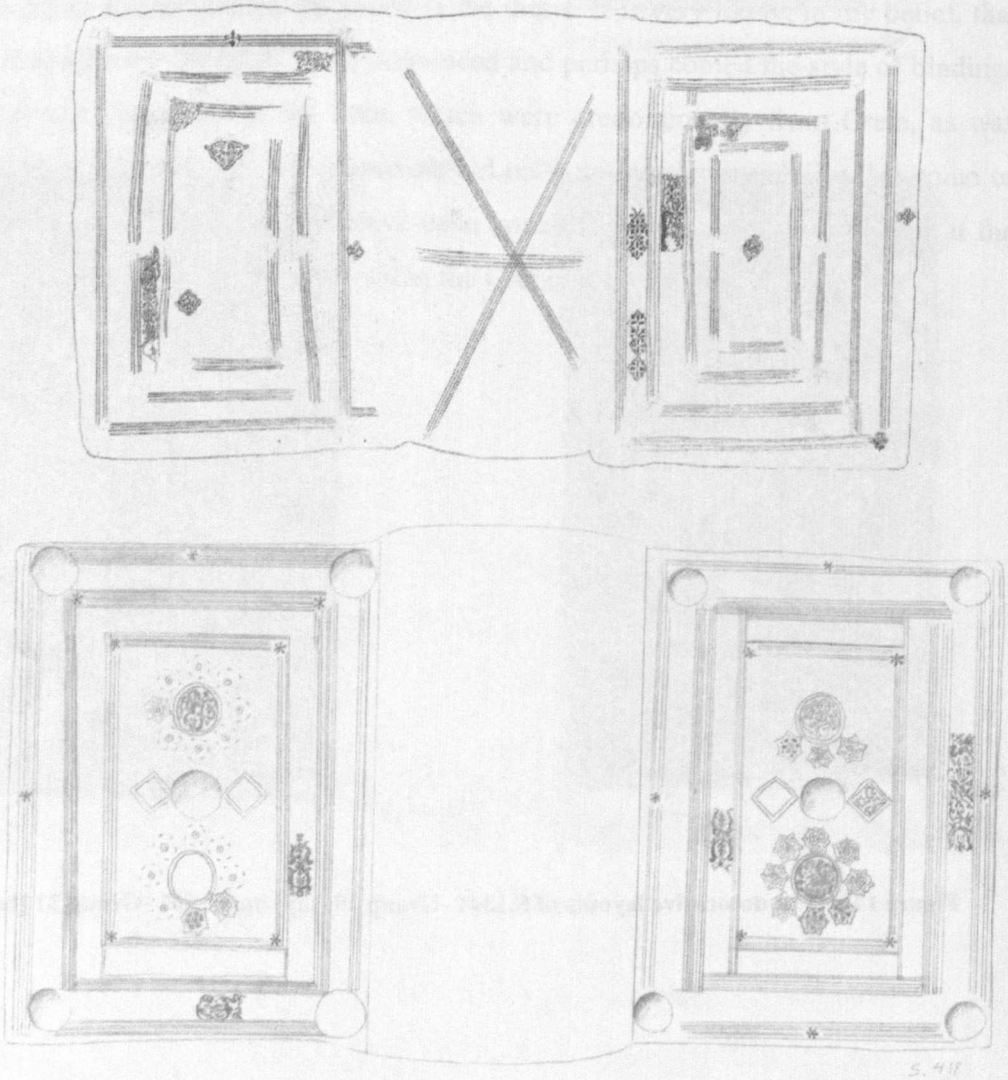


Figure 171 - Drawings of the tooled decoration of S.341 (top) and S.418 (bottom)

made locally in Sinai. There is only a small variation in the sixteenth century where imported bindings make use of 43.7% relief tools compared to 56.3% intaglio tools whilst on Sinaitic bindings the ratio is 30.5% relief to 69.5% intaglio tools. In the seventeenth century, imported bindings make use of 59.3% relief to 40.7% intaglio tools, while on Sinaitic bindings the ratio is nearly 50-50%. These small variations may be explained by the fact that several tools remained in use at the monastery for up to two centuries, as discussed in 4.1.11. Many of the impressions recorded are therefore not from tools that were contemporary with the bindings.

What may also be deduced from these statistics is that although the fact that Sinai binders never adopted gold tooling to decorate their bindings, their choice of tools almost matches bookbinding trends and the choices of tools by binders working outside the monastery. Considering that the majority of the tools of the Sinai binders were imported, and cut by toolcutters who would have most likely provided for commercial binderies, as well as for the monastery, the tools would follow the prevailing fashions and designs, as well as the change from intaglio to relief tools.

d) *Group 21* and *Group 12*

These two groups are dated approximately half a century apart, Group 21 from c.1638-1641 and Group 12 from the beginning of the eighteenth century. The bindings of Group 21 are tooled in blind with numerous different tools, and give the impression of luxurious bindings of particular importance, particularly since these were bindings on books intended to be given to the monastery. The bindings of *Group 12* are more austere and not as carefully made. Unsuccessful attempts at gold tooling on one of the bindings suggest a binder who was less experienced on gold tooling techniques. However, they demonstrate also a tendency to copy the style and techniques used on bindings that were fashionable at the time for binding Greek books, a tendency which is further supported by the choice of tools that were used. Centre-pieces with theological representations, along with corner-pieces and a roll with vegetation motifs are the main tools used, which demonstrate that the sources of influence had shifted from Italian to eastern European styles.

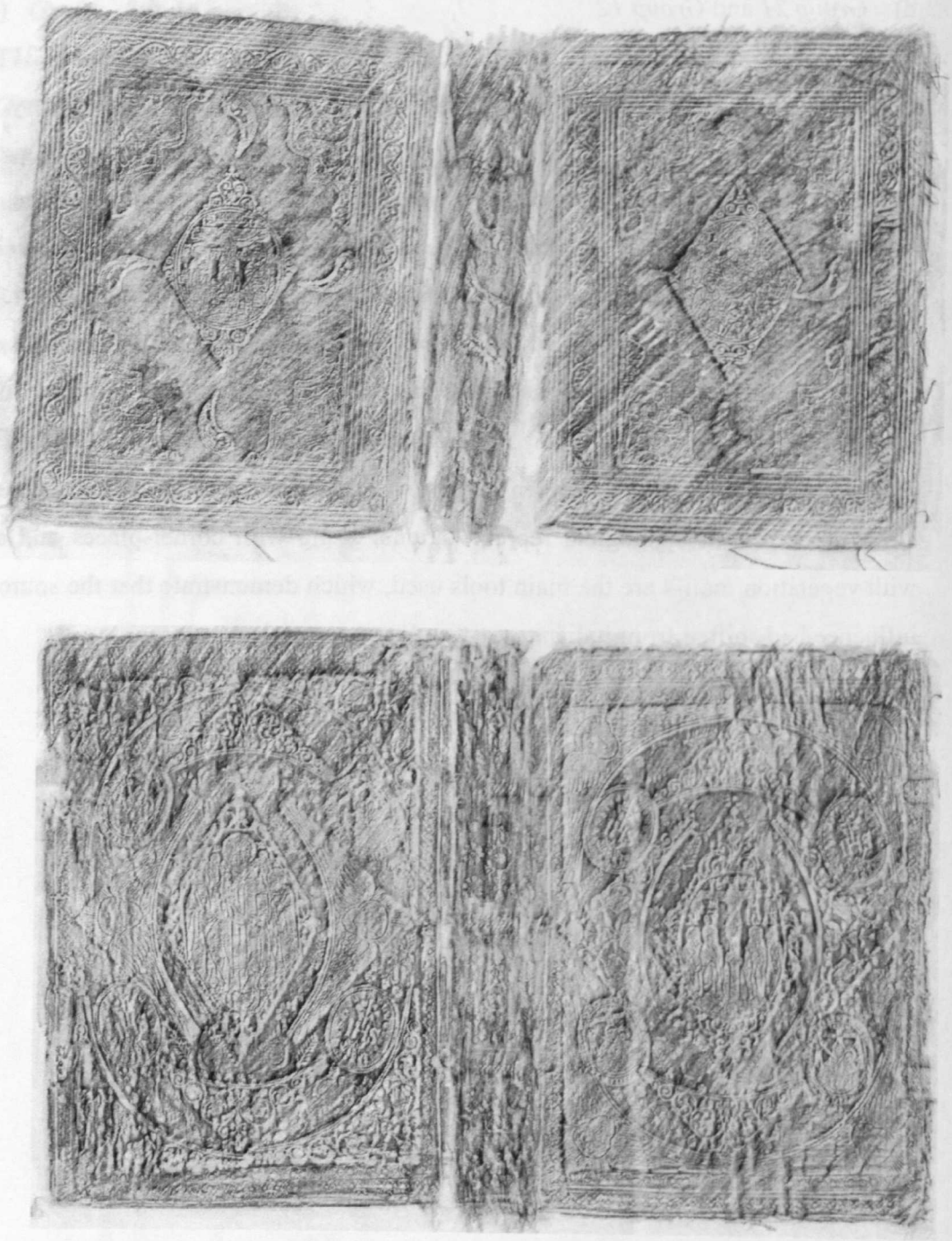


Figure 172 – Full-size rubbings of the covers of S.341 of *Group 12* (top) and S.418 of *Group 21* (bottom).

4.2.4 Intaglio/relief tools and how they compare to the intaglio/relief tools used at the monastery.

Based on the 123 bindings from the library collection that have been identified to be imported and which have been at least roughly dated, it was possible to examine and compare the use of intaglio tools as opposed to relief tools. This comparison is useful for understanding how finishing tools chosen by or produced for Greek binders were engraved, and, most importantly, to compare how this ratio compares to the tools used by the Sinai binders, as examined in 4.1.10. As discussed in the latter chapter, in western workshops relief engraved tools were gradually replaced intaglio tools after the introduction of gold-tooling.

This is also observed on Greek bookbinding workshops too, as can be seen in the following chart.

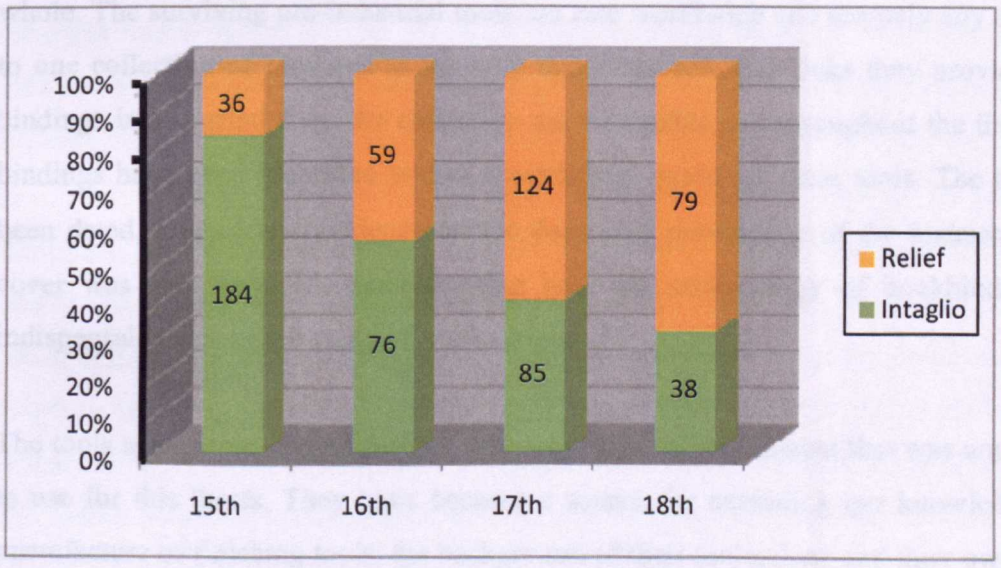


Figure 173 - Graphics showing the percentages of intaglio and relief tools used on imported bindings between the fifteenth and the eighteenth century. The numbers in the columns indicate the number of tools.

It is worth noting that the ratios between intaglio and relief tools between the fifteenth and eighteenth centuries is not very different between the imported bindings and those

4.3 Conclusion

This thesis has concentrated on three major aspects of bookbinding evidence from the library of the monastery of Saint Catherine: a) the finishing tools that were used to decorate bindings that are found today at the library, b) the bookbinding workshops that were identified to have worked at the monastery and c) the bookbindings that are imported to the monastery and which were made by identified workshops not directly to the monastery. The collation of evidence from these three aspects has been important in mapping out the history of bookbinding at the monastery, or at least of that part of the history for which the surviving decorated bindings themselves bare witness.

The discovery of 40 original finishing tools during the course of this research materially affected the outcomes presented. They were discussed analytically in PART 2, and it is evident that there is much to be learnt from these tools, for they are unique not only within the monastery's collection but in the field of the archaeology of bookbinding as whole. The surviving pre-industrial tools are rare worldwide and scarcely any are related to one collection of bindings in the way that these are. The links they provide for the bindings investigated from the collection are invaluable and throughout the thesis many bindings have been identified within a workshop, based on these tools. The tools have been dated, located and evidence on the dates and provenance of the manuscripts they cover was also revealed, demonstrating how the archaeology of bookbinding is an indispensable part of the study of manuscripts.

The tools need to be studied further, with expertise and equipment that was not available to use for this thesis. They have become a source for extending our knowledge of the manufacture of finishing tools, the background of their toolmakers and their owners. This thesis has been able to explore some of these issues and to provide some answers, by analysing evidence that has not been contained in any other surviving tools. Finishing tools that have been used over time-spans have been recorded, some of them used for longer than 200 years, while some have been identified as dating from as early as the fifteenth until the eighteenth century. The manufacturing process of some of these tools

has also been information. A number of them, made out of wrought iron, are shaped with the purpose of being hammered rather than pressed by hand, which suggests a different approach to decorating book covers from what has often been assumed. Tooling must have been carried out cold, which may have been the most common way to tool before the advent of gold tooling, but in the monastery this carried on for centuries. Evidence of casting on two rolls was particularly striking and will raise questions about how tools were manufactured. Although hand finishing is evident on one of these two rolls, this thesis was able to demonstrate that the process of their making clearly involved casting.

Along with the finishing tool finds, 5528 rubbings from the 1,195 tooled bindings of the manuscript collection have provided the material to create some order out of the collection. From the 70 bookbinding workshops that were identified, 22 were active within the monastic community or in one of its dependencies in Raithos or in Cairo. The character of these workshops has been examined through the nine groups presented in this thesis.

The highs and lows of bookbinding activity at the monastery have also been investigated. The large majority of the decorated bindings made at the monastery that survive are post-fifteenth century, while the end of the fifteenth and the beginning of the sixteenth century display a vigorous activity. During the majority of the sixteenth century, particularly the second half of it, the monastery went through a characteristic stagnancy as far as bookbinding was concerned. At the same time the large majority of the bindings that can be dated to that period came from Crete. This is an interesting phenomenon which may have greater significance in relation to the levels of the production of manuscripts at the monastery. Was this period also a time when manuscripts were imported from Crete, hence the lack of the need for local bookbinding? Palaeographical research on the entire collection is needed to provide evidence for this, and will hopefully help to define the circumstances and the scholarly background of the monastery at this period.

Bookbinding should always be thought in the context of the environment that it was made in. For the monastery books were bound for the manuscripts that were produced by monastic scribes, most often for their personal use or commissioned by another monk. A communal use of manuscripts certainly existed within the monastery, for books intended

to be used in the services of the *katholikon* or other churches of the monastery. Evidence shows that books were re-bound more often than new bindings were created and the main task of the local binders was more to care for the existing manuscripts, which had often been imported, and to provide for the needs of the monastery than to support local production.

It is most likely that the clientele of the binder – when not destined for personal use - was not as demanding as that in western secular centres, and fashionable decoration was not always a concern. Although Italian imported tools were certainly used from very early on, and the bindings themselves slowly evolved and adopted western features from the seventeenth century onwards, the decoration of many bindings in most cases seems to have been first a matter of the availability of materials and tools and not so much a matter of keeping up to date with the prevailing fashion. This is further emphasized by the lack of gold-tooled bindings by Sinai binders, to which it may have seemed as an unnecessary luxury. Nevertheless, this has not affected the quality of the work produced at the monastery and the structures that were made, particularly up until the end of the seventeenth century, compare well with good-quality imported bindings of the corresponding periods.

The investigation of the imported bindings in the collection has contributed to our understanding of how the monastic library was assembled. Their provenance has been an important factor to consider, since they reflect the political, economical and spiritual relations that the monastery had with the places that they came from. The most significant period of book importations that is displayed through the bookbindings examined, was during the sixteenth century, when a considerable number of books were obtained by gift or purchase from Crete. By contrast, after the end of the seventeenth century, the sources for books were found in Greek-populated centres of Walachia and in Northern Greece. Consequently the style of the bindings found in the library changed to match the contemporary eastern European style and the influences that this had on the local monastic bookbindings are marked.

The methodology of this research concentrated on the investigation of the bookbinding history and the relations of the bindings based on their decorative properties, while examining the structural features of bindings as a means of confirming of these relationship. As a result, a considerable proportion of the collection has remained unexamined. Much remains to be investigated about the earlier periods of bookbinding (i.e. pre-fifteenth century) represented in the library at the Saint Catherine's monastery that this study has not been able to explore, particularly since the earliest Greek bookbindings are also those with the least decoration. A better-defined methodology for relating the similarities of book structures will be required in order to use these to identify workshops. More analytical methods will also be required into the materials used on these bindings. Research in these areas will complement our knowledge of the great library of the monastery, and will undoubtedly contribute to our understanding of the ancient book structures it houses and learn more of the history of each of its unique manuscripts.

This is a task for future research.