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The Development and Adoption of the Codex

Rutherford Allison
Classics and Philosophy Honors Bachelor of Arts Capstone Thesis

One of the longest-lasting and least recognized changes that occurred under the Roman Empire is the transition from scrolls as a vessel for literature to codices, the format which, in some way, is still used today. Indeed, until the invention of the printing press, texts had not undergone as impactful a shift as was experienced during the period between 250 and 450 AD. This shift was tied closely to the spread of Christianity; the codex's rise to dominance maps closely to the spread of Christianity, and this is no accident. As will become apparent, Christians possessed a strong and distinctive preference for the codex over the scroll. Beyond its relationship to the spread of Christianity, the codex also had practical advantages that facilitated its adoption. In this thesis, I will examine the spread of the codex as it became the dominant vessel for literature and, in doing so, will demonstrate some of the reasons that explain why the codex overtook the scroll.

In part one, I will examine the development of the codex as a technology. The codex descends from two earlier technologies, the wooden tablet and parchment notebook, which will be examined in this part. I will then look at early mentions of the codex, especially its first mention by Martial, and the status of the codex before it became dominant.

In part two, I will look at the Christian usage of the codex. The most important question to answer in this section is why Christians preferred the codex over the scroll. This preference is key to explaining why the codex was able to replace the scroll in a relatively short span.

In my third part, I will examine the spread of the codex from the Christians to the rest of the Roman literary world. Christian preference alone cannot explain why the codex became the dominant; other explanations are required. In this section, I will look at the advantages that the codex offered over the scroll and how they helped to facilitate its spread.

Part One: The Development of the Codex

The codex descends from two prior writing technologies: the wooden tablet and the parchment notebook. Of these two, the wooden tablet is by far the oldest. Literary sources allow tablets in the Greek world to be traced as far back as the composition of the *Iliad*.[1] The earliest physical evidence of wooden tablets dates to the middle of the third century BC. These tablets, seven in total, all have wax coatings on the writing surface, as would become prevalent, and document expenses during a journey down the Nile.[2] In Rome, tablets were used beginning in a similar period, becoming commonplace by the time of Cato the Elder in the third century BC.[3] Wooden tablets had a variety of uses. As in the example of the third-century Greek tablets, they were commonly used for a variety of mercantile and economic purposes, such as keeping accounts and inventories.[4] Writers and orators used tablets to take notes and compose rough drafts, such as Pliny the Elder, whom the Younger describes as taking notes on a wax tablet while a slave read a text aloud, which were used to compile the *Natural History*.[5] In Rome, tablets were used for legal and official purposes, including reports of trials, declarations of births, and *diplomata militaria*, tablets used to record the privileges soldiers earned from their service.[6]

Tablets had two direct impacts on the codex: its format and its name. Wooden tablets came in a variety of formats, including single pieces of wood and multiple tablets bound together vertically, bottom to top.[7] The most common were the diptych and polyptych. In these, multiple pieces of wood were bound using tie holes on one side, similar to a modern book.[8] Diptychs refer to tablets of this form made from two pieces of wood; polyptychs consisted of multiple internal leaves, which is the form that the codex would take. The codex also gets its name from wooden tablets. The term for multiple tablets or a tablet with multiple leaves was *caudex*, which also referred to tree trunks. *Caudex* later changed to *codex*, would later exclusively refer to parchment and papyrus codices.[9]

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[1] Serena Ammirati, "The Use of Wooden Tablets in the Ancient Graeco-Roman World and the Birth of the Book in Codex Form: Some Remarks," *Scripta* 6 (2013): 10.

[2] Colin H. Roberts and T. C. Skeat, *The Birth of the Codex* (Published for The British Academy by Oxford University Press, 1987), 12. These tablets were first discussed in H.I. Bell and Flinders Petrie, *Ancient Egypt*, 3, 1927, 65-74.

[3] Roberts and Skeat, 13.

[4] Ammirati, 11.

[5] Roberts and Skeat, 12.

[6] Ammirati, 11; Brian Campbell, "diploma," *Oxford Classical Dictionary*, 7 March 2016.

[7] Ammirati, 10.

The wooden tablet later gave rise to the parchment notebook. The Romans innovated upon the tablet by replacing the writing surfaces with parchment, though the exact dating of this innovation remains unclear. By the time of Horace, parchment had become an alternative to wax tablets for writers. Horace references parchment being used as material for a rough draft of a literary work in both his *Satires* and *Ars Poetica*.[10] In the *Satires,* he writes "*Sic raro scribis, ut toto non quater anno / membranam poscas, scriptorum quaeque retexens*" (So seldom do you write, that not four times in all the year do you call for the parchment, while you unweave the web of all you have written). In the *Ars Poetica*, he uses the same term, *membrana*, to refer to parchment sheets which were used in writing rough drafts. Though he does not explicitly state that the parchment had taken the same form as wax tablets, i.e. bound on one side, the identical use for writing rough drafts makes it likely that this was the case.[11] Parchment could serve as an alternative to tablets because, like tablets, parchment was reusable. The ink used by the Romans did not easily adhere to parchment, allowing writing to be removed with relative ease.[12]

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[8] Ammirati, 10.

[9] Roberts and Skeat, 12; Michiel de Vaan, "*Caudex,*" *Etymological Dictionary of Latin and the other Italic Languages*, (Leiden: Brill, 2008), 99.

[10] Horace, Sat. 2.3,1-2; *Ars Poetica* 386-390, cited from Roberts and Skeat, 20; translation by H. Rushton Fairclough from Loeb Classical Library

[11] Roberts and Skeat, 20.

[12] Roberts and Skeat, 20, footnote 1.

Parchment notebooks did not replace wooden tablets, which continued to be used in the Greco-Roman world as late as the seventh century.[13] Instead, notebooks served as an alternative.

Parchment notebooks had taken the same layout as tablets by the first century AD, as indicated by Persius. In a passage describing materials useful to a student, he writes "*iam liber et positis bicolor membrana capillis / inque manus chartae nodosaque venit harundo.*" (Now my book comes to hand, and the two-tone parchment smoothed of hair, some paper and a jointed reed pen.).[14] The use of the term *bicolor* likely refers to the difference in color between the flesh- and hair-sides of a piece of parchment. This difference in color would have been far more obvious in a parchment notebook when compared to a scroll, as a scroll would have been sewn together such that all the flesh-sides and hair-sides would have been on the same face.[15] Because Persius makes note of this coloration, the parchment notebooks mentioned were in the same layout as tablets. Parchment notebooks are mentioned again in the late first century when Quintilian explicitly describes a parchment notebook as an alternative to a wax tablet for students with weak eyesight, writing "*scribi optime ceris, in quibus facillima est ratio delendi, nisi forte visus infirmior membranarum potius usum exiget*" (It is best to write on wax, where it is easiest to erase, unless weak sight demands the use of parchment instead).[16] From these examples, it is clear that, by the end of the first century, parchment notebooks had arisen as an alternative to wax tablets and filled many of the same roles for writers and students. Horace shows that, like wax tablets, writers utilized parchment, probably in the form of a notebook, to write and revise texts. Persius and Quintilian show that the parchment notebook had found a place in the classroom, one of the uses of the wax tablet. Parchment notebooks also found legal uses, being used by various lawyers and legal experts to take notes.[17]

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[13] Ammirati, 10.

[14] Persius, Sat. 3, 10-11, cited from Roberts and Skeat, 20, translation by Susanna Morton Braund from Loeb Classical Library

[15] Roberts and Skeat, 20-21.

[16] Quintilian, *Instutio Oratoria*, 10.31-32, cited from Roberts and Skeat, 21; translation by Donald A. Russell from the Loeb Classical Library.

The first mention of the codex as a format for literature comes from Martial, who mentions the codex in six different poems. The traditional interpretation of these poems comes from C.H. Roberts and T.C. Skeat, and as such will be presented first here. Other interpretations, notably Sarah Blake's argument that Martial does not describe a codex, will be detailed afterwards. The traditional interpretation argues that poem 1.2 and five poems from Book 14 all describe the first appearance of a literary codex. Poem 1.2 introduces a revised edition of Books 1 and 2.[18] In the poem, Martial describes the format of this new text as "*libellos … quos artat brevibus membrana tabellis*" (little books … that parchment compresses in small pages). The term *tabellis* indicates that this new edition takes the same format as a small handheld wax tablet. He also emphasizes the advantages of this new codex format, chiefly its portability and small size. The poem concludes with directions to the bookshop where the text can be purchased.[19]

In the poems from Book 14, Martial writes of codices containing works from five famous authors given as gifts during Saturnalia: Homer in 184, Virgil in 186, Cicero in 188, Livy in 190, and Ovid in 192, with the mentioned codices containing the entire named works.[20] In the title of 14.184, Martial uses the term *in pugillaribus membraneis* and the term *in membranis* in the titles of the other four poems, indicating that these poems are written on parchment notebooks. In the body of the poems, Martial uses the terms *pelle* in 14.184 and 14.190, *membrana* in 14.186 and 14.188, and *tabella* in 14.192. This echoes the format described in the titles and in 1.2; the texts are written on parchment in the form of a notebook or tablet, which is a codex.[21] Some issues arise with a codex containing all of Livy's works, as a single codex containing all 142 books does not seem possible, but the poem does not necessarily describe a single codex.[22] This would have been an expensive present, but Martial describes other costly presents, such as a cook, a talented slave girl, and an entire troop of actors.[23]

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[17] Roberts and Skeat, 21.
[18] Roberts and Skeat, 24.
[19] Martial, *Epigrams* 1.2. cited from Roberts and Skeat, 25, translation by D.R. Shackelton Bailey from Loeb Classical Library
[20] Roberts and Skeat, 25.

Martial's codices, while taking the same physical format as parchment notebooks, are distinguished from them in two ways. First, these texts were published, as indicated in 1.2. Publication in the ancient world was a complicated and varied process that included methods such as public readings or selling a text. All forms of publication relied on the underlying idea that a text existed among an anonymous and public audience.[24] 1.2 demonstrates that the codex described was published because it describes where to purchase it; Martial wrote this poem with public consumption in mind. Second, the texts described in Book 14 are distinct from parchment notebooks because their contents are literature, not notes. Notebooks held functional texts that served a purpose, such as record keeping or to serve as a reminder. Literature, by contrast, was intended to be read for pleasure.[25] While the format holding them takes the same form as a parchment notebook, the intent is very different. These texts are literary codices, containing great works, not parchment notebooks.

This literal interpretation of Martial does have some issues, as argued by Sarah Blake, who advocates for reinterpreting the poems within the larger literary context of Martial. Blake contends that poem 1.2, rather than serving as an advertisement for a newly invented technology, fits into the larger scheme of Martial's poems. The opening series of Book 1 serves as an introduction to multiple audiences.[26] Within this context, Secundus, whom the literal reading interprets as a bookseller, stands in for the reader who enjoys and understands the wit and unserious nature of epigrams.[27] From this, Blake argues that the whole poem, including the description of a real codex, cannot be taken literally.[28] The object being described is likely a cover for a tablet or a scroll, not a newly invented codex.[29] The poems in Book 14, Blake argues, also do not describe physical codices, but are instead a metaphor for a student's notebook and the endless text that it could hold. Homer, Virgil, Cicero, Livy, and Ovid, the texts Martial mentions as appearing in codices, were commonly studied in schools. The use of these specific texts, combined with the description of the works as on parchment, indicates that Martial does not refer to actual books. Blake concludes that Martial metaphorically describes the physical medium of an endless text, constantly washed and rewritten.[30]

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[21] Martial, Epigrams 14.184, 186, 188, 190, 192, cited from Roberts and Skeat, 25.

[22] Benjamin Harnett, "The Diffusion of the Codex," *Classical Antiquity* 36, no. 2 (2017): 201, footnote 90.

[23] Roberts and Skeat, 27.

[24] Matthew D. C. Larsen and Mark Letteney, "Christians and the Codex: Generic Materiality and Early Gospel Traditions," *Journal of Early Christian Studies* 27, no. 3 (2019): 397.

[25] Larsen and Letteney, 398.

Blake's critiques can be reconciled with the traditional interpretation, which leads to the conclusion that Martial does indeed use metaphor while also referring to literary codices, for which Benjamin Harnett argues. He points out that Blake's argument that Poem 1.2 refers to a tablet cover or scroll goes against her own article.[31] Rather than taking 1.2 as part of a series of introductions, Harnett takes it in parallel with 1.193, which gives directions to where Martial's poems can be bought on a roll. This, along with the connotations of the two locations named in each poem, presents Martial and his poems as flexible, able to fit into many contexts.[32] Martial, in this case, does refer to the codex metaphorically. However, for a metaphor to be effective, the referenced object must be familiar to the audience, so Martial must refer to a somewhat common usage of the codex.[33] This indicates that, in the time of Martial, the codex had already become a vessel for literature, though less common than the scroll.

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[26] Sarah Blake, "Text, Book, and Textbook: Martial's Experiments in the Codex," *Ramus-Critical Studies in Greek and Roman Literature* 43, no. 1 (January 1, 2014): 72.
[27] Blake, 74.
[28] Blake, 76.
[29] Blake, 77.
[30] Blake, 90.
[31] Harnett, 206, footnote 123.

After the first century, the codex continued to be used, though not as a vessel for literature. The next mention of the codex in any literary source comes from a text by Galen written sometime after 192 and rediscovered in 2005. In this text, *Περὶ Ἀλθπίας*, 'On Consolation from Grief,' Galen describes texts he lost in a fire in 192. Among these, he mentions two collections of drug recipes kept in codex format. These codices occupied a space between the published scroll and common notebooks. Like published scrolls, these codices were highly valuable and carefully created.[34] One collection was created by a rich man in Galen's hometown, who purchased drug recipes from various doctors and had them bound in two parchment codices. The other collection was created in a similar way, compiled by another doctor. Both collections were not working notebooks but completed works.[35] Their function, however, was closer to a notebook, as Galen describes using the codices as reference books, pulling recipes from the codices as needed rather than reading the whole text at once, a use for which codices were better suited.[36] This example shows that, by the second century, the codex had entered a middle ground between notebooks and scrolls.

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[32] Harnett, 208.

[33] Harnett, 209.

[34] Matthew Nicholls, "Parchment Codices in a New Text of Galen," *Greece and Rome* 57 no. 2 (October 2010): 381.

[35] Nicholls, 383.

[36] Nicholls, 385.

Two legal sources help illuminate the status of the codex during the early third century: Ulpian and his successor and rival Paulus. Writing between 211 and 217, Ulpian clarifies what is to be considered a *liber* for the purposes of inheritance. In this passage, Ulpian mentions *codices membranei* and *codices chartacei*, which refer to codices of parchment and papyrus.[37] While Ulpian does not consider codices to be proper *libri*, as he distinguishes them from *volumina*, the need for clarification indicates that the codex had begun to be seen as an acceptable vessel for literature.[38] Indeed, only a few years later, Paulus would redefine *libri* in such a way that included codices: a complete, self-contained unit for which the format, either codex or scroll, and the material used, either parchment or papyrus, was irrelevant.[39]

It is useful to give some context to just how obscure the codex was as a vessel for literature. Prior to the adoption of codices, scrolls were overwhelmingly dominant. From a sample of 1697 surviving Greek literary texts from the first, second, and third centuries, over 98 percent are in the scroll format.[40] The types of texts included in the sample range from traditional literature to scientific writings, demonstrating the scroll's ubiquity. Scrolls were also not only an elite technology. From a sample of surviving Greek romances found in Egypt, 90 percent are scrolls.[41] Other lower-class texts, such as fortune-telling manuals, also tend to be scrolls.[42]

By the beginning of the third century, the codex had begun to enter into the literary consciousness of the ancient Mediterranean. It had begun to be recognized as a vessel for literature, but still was not widely used as a literary form. The practical advantages of the codex, its size, comprehensiveness, and ease of reference, were clear to the few who utilized the format. For the codex to rise to prominence, it would take another hundred years and a push, which would come from the Christians, who had adopted the codex by the beginning of the second century.

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[37] Roberts and Skeat, 31.
[38] Roberts and Skeat, 30.
[39] Roberts and Skeat, 32.
[40] R&S 37
[41] R&S 69
[42] Roberts and Skeat, 70.

Part Two: Christians and the Codex

While the codex was slowly gaining ground within the non-Christian world, Christians flocked to it. From a sample of 172 Christian papyri dated prior to 400, 158 were in codices, a figure of nearly 92 percent.[43] For comparison, only 11.42 percent of surviving pagan Greek texts from the same period were codices.[44] These samples must be taken with a grain of salt because it assumes that these surviving texts are an accurate sample, but the overwhelming proportion of Christian codices shows that the Christians stood apart in their use of the codex. They also utilized the codex from a very early period. The earliest Christian texts, all dated to the second century, all appear in codex form.[45] This indicates that the codex gained importance within Christianity early on in the movement, likely around the turn of the second century.[46] These statistics raise the question of why Christians chose the codex, which at the time was a new and relatively obscure literary format. Most theories all agree that the Christians utilized the codex because an important early text took this form, and this practice spread to the rest of their literature, much of which was scripture.[47] There are four main candidates for this early text: the Gospel according to Mark, Paul’s letters, the four-gospel canon, and a hypothetical proto-gospel.

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[43] Roberts and Skeat, 38.
[44] Roberts and Skeat, 37.
[45] Roberts and Skeat, 40.
[46] Roberts and Skeat, 61.
[47] Larsen and Letteney, 388; Roberts and Skeat, 60; Harry Y. Gamble, *Books and Readers in the Rarly Church : A History of Early Christian Texts* (New Haven : Yale University Press): 58; T. C. Skeat, “The Origin of the Christian Codex,” *Zeitschrift Für Papyrologie Und Epigraphik* 102 (1994): 263.

There are two arguments for the gospel according to Mark as this early text. C.H. Roberts and T.C. Skeat theorize that Mark faced pressure from those that had heard Peter preach to write down what he had taught. For this purpose, Mark chose the parchment notebook, as his audience would have been familiar with the format from professional and legal uses of notebooks. Then, as tradition associates him with the founding of the Church of Alexandria, Mark brought his notebook with him there. In Alexandria, this notebook was copied onto papyrus, as it was more readily available, but retained its codex format. From here, the codex format spread throughout the Christian community.[48] This first argument for Mark's Gospel has two major issues. First, for the codex format to be retained, the gospel must have had serious authority to give the codex format staying power.[49] Early Christians, however, did not treat Mark's Gospel as important, or even as its own distinct text.[50] Second, this theory requires the Church of Alexandria to have a strong influence over other churches that it lacked.[51] For these reasons, this argument for Mark's Gospel as the precedent-setting text falls short.

The next argument, from Matthew D.C. Larsen and Mark Letteney, claims that the writer of Mark chose the codex format because it was intended as ὑπομνήματα, unfinished notes, not as a complete piece of literature. As early as the composition of the Gospel according to Luke, Mark was seen as an incomplete text. The preface to Luke's Gospel, verses 1:1-4, mentions other failed attempts to present a complete story of the life of Jesus, which include Mark.[52] It was a common practice in the ancient world for authors to take notes and use them to compile a finished piece of literature,[53] which is how Luke treats Mark's Gospel. Mark's multiple endings further support his Gospel’s status as ὑπομνήματα, as it were viewed as unfinished and therefore changeable.[54] In the ancient world, there was a close tie between the type of text and the medium that supported it; ὑπομνήματα were linked to parchment notebooks, so Mark was likely first circulated in this format.[55] Because Mark was the first Gospel written, the format it took had a lasting impression on the later Gospels and further Christian literature.[56] This argument for the Gospel according to Mark is much stronger than the previous argument, as it places Mark squarely within the broader cultural norms of ancient literature. Rather than choosing the codex because his audience was familiar with it, as any literate audience would have also been familiar with scrolls, Mark chose the codex because it was the proper format for the type of text he was writing. Accounting for these cultural practices makes this argument much more convincing.

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[48] Roberts and Skeat, 55.
[49] Roberts and Skeat, 56.
[50] Larsen and Letteney, 414.
[51] Roberts and Skeat, 56.
[52] Larsen and Letteney, 400.
[53] Larsen and Letteney, 398.

The argument for Paul’s letters as the key text, taken from Harry Gamble, claims that an early collection of the letters circulated as a codex. The contents of this codex were ten letters written to seven churches, Corinthians, Romans, Ephesians, Thessalonians, Galatians, Philippians, and Colossians, arranged in decreasing length. In this arrangement, multiple letters written to the same community are treated as one unit.[57] This careful arrangement and its impact on later collections of Paul’s letters suggests that the collection circulated in a single volume because, if contained in multiple volumes, this order would not have been as well preserved.[58] Paul’s letters were collected as a group of seven for two reasons: the number seven signifies universality[59] and the works, taken together, solve the issue that Paul’s letters individually were too specific to be useful to the wider Christian community.[60] Because the number seven signified the universality of Paul's letters, the collection must have been in a single volume. Multiple volumes would not have the same impact and the collection could be separated.[61] Only a codex could hold such a collection. A scroll of Paul's letters would have been 24 meters long when the maximum length of Greek scrolls was eleven meters.[62] Paul's letters are also more likely to have taken the codex format than a gospel. Paul's letters were not a narrative, for which the common form was the scroll, and as such were not intended to be read straight through. This suggests that Paul's letters, especially as a collection, were meant to be used as a reference book, for which the codex is a much better format.[63]

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[54] Larsen and Letteney, 404.
[55] Larsen and Lettenet, 409.
[56] Larsen and Letteney, 411.
[57] Gamble, 59.
[58] Gamble, 62.
[59] Gamble, 59.

This theory is convincing because it relies on the codex's practical advantages: its ability to hold large texts and ease of reference. These both come up in the earliest descriptions of the codex from Martial and Galen, indicating they were important to many early adopters of the format. In this theory, these two practical advantages are precisely why Christians took up the format. Because its practical advantages are so tied to the early and later adoption of the codex, linking Christian usage to these advantages makes the argument much more convincing. The case for the Gospels is also weaker than that of Paul's letters because they did not have as strong an influence on the early church. Christians regarded Paul's letters as significant from a very early period. They were the first texts to be given the status of scripture and were likely the first Christian texts.[64] Because of this, the impact of Paul's letters on the format of later Christian texts is much easier to imagine than the influence of a gospel, which had not gained prominence by the late first century.[65] There are issues with this theory, mainly that a collection of Paul's letters did circulate in the scroll format,[66] though this mention of does not indicate how many letters are contained within the scroll. Further, the evidence that a scroll could not contain all ten letters helps to mitigate this issue.

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[60] Gamble, 60.
[61] Gamble, 62.
[62] Gamble, 62.
[63] Gamble, 63.
[64] Gamble, 58.

Another theory, argued for by T.C. Skeat, ties the creation of the Christian adoption of the codex to the development of the Four-Gospel Canon. Only a codex could hold all four gospels within a single text, as a scroll containing all four would need to be 30 meters in length, while the accepted maximum length for a scroll is eleven meters. A codex would also be able to contain the Acts of the Apostles, another important early Christian text.[67] The publication of the Gospel of John, around the year one hundred, created a crisis of sorts for the early Christians,[68] who needed to create a canon due to the abundance of gospels in circulation. The various churches corresponded, either by letter or by conference, and the codex, a recent Roman invention, was suggested as a way to publish the new canon.[69] Four gospels were selected either because of the four creatures that appear in the Apocalypse, as argued for by Irenaeus, or because of the four four-faced cherubim in the first chapter of Ezekiel and were bound into a codex that then circulated throughout the Christian community.[70] This argument has the advantage of connecting the initial adoption of the codex to practical concerns, which was a concern for other early adopters, but the dating of the four-gospel canon is impossibly early.[71]

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[65] Gamble, 58.
[66] Larsen and Letteney, 412.
[67] Skeat, "The Origin of the Christian Codex," 264.
[68] Skeat, 266.
[69] Skeat, 267.
[70] Skeat, 268.
[71] Larsen and Letteney, 390.

In Roberts and Skeat's second theory, they propose a hypothetical proto-Gospel, adapted from the Jewish custom of recording important texts on papyrus tablets, as the early key text. This theory places the development of the Christian codex at Antioch, which was an important city for the early Christian community, especially regarding early efforts to convert Gentiles.[72] Missionaries would have required texts for this and, due to a large Jewish population in the city, papyrus tablets to use as a writing material would have been readily available. Christians in the city then took these tablets and recorded the sayings of Jesus and stitched them together into a codex of sorts, perhaps with the addition of a passion narrative to create what Roberts and Skeat term a Proto-Gospel some time before the turn of the first century.[73] Papyrus tablets would have been used because many early Christians were Jewish and would have been familiar with the practice of recording important sayings on such tablets.[74] The importance of traditions from Antioch grew following the sack of Jerusalem during the Jewish Revolt, which led to the codex format gaining significant influence over early Christians as Christianity began to expand.[75]

This theory has three main issues. First, it relies on Christians who were seeking to convert Gentiles treating Jewish scriptural traditions in strange ways. It requires Christians to respect the informal tradition of using papyrus tablets to record important teachings while disregarding the formal tradition of Jewish scrolls, two decisions that seem at odds.[76] Second, it relies upon an entirely hypothetical text, which causes the assumption of its importance and influence on later Christian texts to be tenuous at best.[77] Finally, this theory divorces the Christian use of the codex from the already existing literary codex and parchment notebook; the

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[72] Roberts and Skeat, 59.
[73] Roberts and Skeat, 59.
[74] Roberts and Skeat, 59.
[75] Roberts and Skeat, 60.
[76] Gamble, 58.
[77] Gamble, 58.

Christian papyrus codex is an entirely new invention.[78] While this is possible, the lack of any evidence aside from speculation to demonstrate this phenomenon creates a serious weakness for the proto-Gospel. Further, the other theories all place the Christian adoption of the codex within its history and other uses, making them much stronger in comparison. The argument for a hypothetical proto-Gospel as the precedent-setting text is fairly weak.

The usage of *nomina sacra*, which Roberts and Skeat tie to the creation of this proto-Gospel,[79] helps to demonstrate the connection between Christian piety and literary practices. This connection then shows why the codex format was likely preserved from an early significant text. *Nomina sacra* refers to the Christian practice of writing significant religious terms, the earliest of which were God, Jesus, Lord, and Christ, in an abbreviated form.[80] The function of *nomina sacra* was to indicate Christian piety in literary text. There is no indication that these would have been read in any special way, the only change occurred in how the word was written.[81] This shows a deliberate connection between Christian piety and how they treated their texts. Like the use of the codex, this practice was uniquely Christian, appears in the earliest Christian manuscripts,[82] and was ubiquitous across Christian groups.[83] All of these factors, combined with the explicitly religious nature of *nomina sacra* further indicate the connection between Christian piety and how Christians wrote their texts.[84] This practice then helps show why Christians remained devoted to the codex. The codex gained religious significance from the early text, which Christians then preserved, similar to how they treated *nomina sacra*.

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[78] Roberts and Skeat, 60.
[79] Roberts and Skeat, 59.
[80] Larry W Hurtado, *The Earliest Evidence of an Emerging Christian Material and Visual Culture: The Codex, the Nomina Sacra and the Staurogram*, Studies in Christianity and Judaism (Wilfrid Laurier University Press, 2000): 277.
[81] Hurtado, 277.
[82] Hurtado, 276.
[83] Hurtado, 278.
[84] Hurtado, 283.

From these theories, the case for Paul's letters is the strongest due to the status of the letters as the earliest important Christian text and its connection to the practical advantages of the codex. Paul's letters being widely circulated throughout the early Christian community as an important text explains why Christians, regardless of location, adopted the codex format. The practical advantages, the same as other early codex adopters recognized, explain why this format was chosen in particular. Mark's gospel serves as a convincing alternative and does not preclude Paul's letters as an influential text.[85] It is entirely possible that both texts influenced the Christian choice to use the codex. The usage of *nomina sacra* alongside the codex indicates that a unique Christian culture existed from an early period that allowed literary conventions with religious significance, including the codex, to spread throughout the growing Christian world. The codex presumably spread in a similar way to *nomina sacra*, with the theological importance of this early text cementing the codex's position within the emergent Christian culture.

Part Three: The Adoption of the Codex

After the end of the first century, when the codex developed as a vessel for literature and Christians adopted it, the codex took quite a while to spread. A sample of texts compiled by Roberts and Skeat, largely from Egypt, show that codices only accounted for two percent of surviving literary Greek manuscripts from the first century. The codex continued to slowly spread during the second century, rising to around five percent of surviving literary manuscripts. In the next few centuries, the codex's spread significantly increased. Around 300, it achieved parity with the scroll and accounted for 90 percent of surviving manuscripts by 450.[86] The codex was able to spread and replace the scroll so thoroughly for two reasons: Christians expanded their usage of the codex to non-religious texts and non-Christians gradually began to adopt the format.

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[85] Larsen and Letteney, 415.

A key part of the spread of the codex into non-Christian texts came from Christians using the codex for pagan texts. Many of the early codices, when it was a niche format, were new texts. This had changed by the fourth century, and many codices were being used to copy older texts.[87] Writers in the fourth century begin to utilize older texts in a different way, relying upon a small canon of classical texts and referencing them in their works. The codex was better suited to this purpose so older texts began to be copied into this format.[88] During this same period, more and more of these readers were Christians for two reasons. First, more Christians began to engage with non-Christian texts. Second, the overall number of Christians grew during this period.[89] When an increasing number of Christians began to purchase new literary texts, they did so in the format with which they were familiar from their religious texts: the codex.[90] So, part of the rise in the use of the codex was the result of the growing adoption of Christianity and the growing adoption of secular texts by Christians.

Non-Christian usage of the codex also began to increase during the third and fourth centuries. This spread was largely due to the advantages that the codex offered over the scroll. The first major advantage the codex had was its cheaper cost. These savings were the result of codices using both sides of the writing material. Generally, codices were 25% cheaper to manufacture when compared to a scroll of the same text.[91] These savings alone cannot explain the adoption of the codex. Many new codices produced in the third and fourth centuries were treated as valuable possessions by their upper-class owners, which seriously complicates the picture.[92] Codices were cheaper than scrolls but were still valuable possessions. Savings, while not unsubstantial, are unable to fully justify the total takeover of the codex.

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[86] Roberts and Skeat, 37.
[87] William V. Harris, “Why Did the Codex Supplant the Book-Roll?,” in *Renaissance Society and Culture: Essays in Honor of Eugene F. Rice, Jr.*, ed. John Monfasani et al., xxiv, 309 vols. (New York: Italica Press, 1991): 83.
[88] Harris, 84.
[89] Harris, 84.
[90] Harris, 85.

Codices were also able to hold complete texts in a much smaller form. When first advocating for the codex, Martial purports its smaller size as a serious advantage; it can be held in one hand, is easily portable, and saves space in libraries. Texts such as the *Iliad* and the *Aeneid* required at least six scrolls but could be contained within a single codex, as demonstrated in Martial's early mentions of the format.[93] The gospels also demonstrate this size advantage, as a scroll containing all four would need to be an unwieldy 30 meters in length, while a codex could easily contain all four.[94] This size advantage also made codices more comprehensive, containing in one codex what required many scrolls. Comprehensiveness was a serious advantage over the scroll, attracting many early users, but was not a pure advantage. Scrolls made lending sections of a text possible, which is somewhat attractive. For example, if someone wanted to borrow Book One of the *Iliad*, a friend who had a copy on scrolls could lend just that section. Someone with a codex copy could only lend the entire text, but the other advantages of size and comprehensiveness outweigh this small issue.[95] Martial advocates for these advantages when he mentions the codex, indicating that these were important for early adopters of the codex. Following the conclusions from part two, these advantages are precisely why Christians first took up the codex before it gained religious significance.

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[91] Roberts and Skeat, 46.
[92] Harris, 83.
[93] Harris, 78.
[94] Skeat, "Origin of the Christian Codex," 264.
[95] Harris, 79.

Codices were also easier to use when compared to scrolls. Reading a scroll required two hands at all times, one to unroll and one to re-roll. A codex, by contrast, could be used with one hand if placed on a table. Otherwise, it would only require a second hand to turn a page rather than the constant need to hold a scroll open with both hands. Though scrolls did roll themselves up,[96] the requirement to use two hands makes them a much more cumbersome technology.

One of the most important advantages of the codex was that it is better suited to be used as a reference tool. The codex, unlike scrolls, allowed readers to mark their place within the text. Augustine demonstrates this in his *Confessions* when he describes marking a passage of Paul's epistles by using his finger to hold his place while he speaks to a friend.[97] Galen's usage of medical codices also shows the reference advantages of the codex. He flipped to different recipes as needed, a function that only the codex allowed.[98] Page numbers, a feature unique to codices, also likely made reference using a codex far easier. Pagination was likely not created to facilitate reference, instead arising as part of the binding process to ensure that all leaves were there.[99] Having page numbers would have allowed a user of a codex to memorize where a passage was, making reference easier.[100] It is easy to imagine Galen, for example, memorizing the page number for the recipe for a specific drug.

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[96] T. C. Skeat, "Roll versus Codex: A New Approach?," *Zeitschrift Für Papyrologie Und Epigraphik* 84 (1990): 297.

[97] Augustine, *Confessions* 8.29-30, cited from Roberts and Skeat, 50.

[98] Nicholls, 385.

[99] Roberts and Skeat, 51.

[100] Harris, 81.

These advantages explain why people adopted the codex, and other factors explain how the codex was able to spread so quickly. First, the codex descended from tablets and notebooks, a long-standing and familiar technology, which made adopting the codex easy for new users. Use was intuitive and similar to what was already familiar, which is an important factor in the spread of technology.[101] Second, how texts spread in the ancient world, by copying texts from others, made trying the codex rather simple. Trialability, also important to the adoption of innovations, requires that new adopters be able to experiment with a new technology before choosing to take it up.[102] Because texts in the ancient world were copied by hand, someone copying a text would be able to use the codex format before committing to it, which allowed the new adopter to see the advantages for themselves and become familiar with the format.[103] Finally, the codex already had found use as a vessel for literature, which further eased the transition. Martial's poems indicate that the codex was used for literature for decades before its spread. Because the medium of a text was closely linked to its genre,[104] early acceptance of the codex as a vessel for literature made the transition easier. Paulus redefining literary texts so that codices were included during the early second century demonstrates that the ancient literary consciousness was comfortable with the format before its widespread adoption.[105] All this is not to say that scrolls were entirely replaced. Throughout the Medieval period and later, scrolls remained commonplace for various official purposes. In England, for example, scrolls continue to be used to the present for Patent

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[101] Harnett, 201.
[102] Harnett, 201.
[103] Harnett, 200.
[104] Larsen and Letteney, 407.
[105] Roberts and Skeat, 32.

Rolls.[106] However, as indicated by surviving fragments, codices completely replaced scrolls as a vessel for literature by the sixth century.[107]

The question of who would have adopted the codex remains. Adopters of the codex can be broken into two broad categories: early adopters, who likely chose the format due to its advantages, and later adopters, who were more likely swayed because of its prevalence. While it is extremely difficult to place any firm identification on the early adopters, those who drove the adoption of the codex, there are three key traits they must have had. First, they were wealthy. Codices were expensive, and their owners treated them as valuable objects.[108] This trait, of course, is not exclusive to the early adopters, as anyone who owned texts, regardless of format, would have been wealthy. Second, they were educated. During the fourth century, many texts written in codices were copies of a small canon of classics including Cicero, Sallust, Vergil, and Terence.[109] Those commissioning these codices, then, would need to be familiar with these texts. Beyond education in reading, many early adopters would have been educated in these 'classic' texts. Finally, they were upwardly mobile. With any new technology, established leaders and figures are slow to adopt while people looking to climb the social ladder readily adopt innovations.[110] This gives some insight into who would have been using the codex. They were educated elites looking to climb further.

Before drawing any conclusions, one more development must be accounted for: the transition from papyrus to parchment as the dominant form of writing material. This shift in material is often linked to the spread of the codex, but this is not necessarily the case. As has been shown, the earliest codices were indeed made of parchment. However, early Christian codices are by and large papyrus. Only later, after Christians adopted the codex, did parchment become the dominant material. Roberts and Skeat distinguish these two developments. Material, they argue, was more a choice of what was available. Papyrus manufacture was limited to Egypt, whereas parchment could be manufactured anywhere.[111] The adoption of parchment was not part of the adoption of the codex, it was more a practical eventuality.[112] So separate are the two transitions, in fact, that parchment and papyrus codices coexisted, divided primarily by region.[113] While Galen was using his parchment codices in Rome, Christians in Egypt recorded scripture in papyrus codices. The different materials here line up exactly by regional differences, as papyrus was much more readily available in Egypt. The transition from scroll to codex had no impact on the transition from papyrus to parchment.

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[106] Roberts and Skeat, 51.
[107] Roberts and Skeat, 75.
[108] Harris, 83.
[109] Harris, 83.
[110] Harnett, 210.

Conclusion

The adoption of the codex as the dominant vessel for literature relies on three main factors. The long history of the codex before it rose to prominence significantly eased the transition away from scrolls. It was a familiar technology rooted in the earlier and even more familiar tablets and parchment notebooks. Christian adoption of the codex also helped to facilitate its spread. Christians were early adopters of the codex because an early text, most likely a collection of Paul's letters, used the format due to its practical advantages, which led to early and widespread adoption by Christians. This made Christians familiar with the format, who used it when they began to purchase new copies of non-Christian texts. Finally, the practical advantages of the codex—its lower cost, smaller size, ease of use, and superiority as a reference tool—led non-Christians to increasingly adopt the technology. The codex supplanted the scroll because it was a superior technology.

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[111] Roberts and Skeat, 8.
[112] Roberts and Skeat, 8.
[113] Roberts and Skeat, 5.

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