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The Construction and Contents of the Beatty-Michigan Pauline Epistles Codex (P46)

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Abstract
The surviving portion of the papyrus codex of the letters of Paul split between the Chester Beatty Library and the University of Michigan (P46) consists of a well preserved but damaged single quire containing parts of nine of Paul's letters. Because the pages of the codex are numbered, scholars have believed that it is possible to precisely reconstruct the original size of the quire, which turns out to be too small to fit the traditional Pauline corpus of fourteen letters. Many scholars have taken this to mean that the codex did not contain the Pastoral letters (1-2 Timothy and Titus). Jeremy Duff has argued that the copyist increased the number of letters per page in the second half of the codex and likely intended to add extra leaves in order to produce a codex with all of the fourteen letters found in the majority of undamaged Greek manuscripts of Paul's letters. While Duff's hypothesis has been critically engaged on other grounds, this paper assesses Duff's proposed ancient comparanda for the addition of extra folia to the end of a single-quire codex and revisits the problem of the contents of this codex in light of the construction techniques of better preserved single-quire codices.

Keywords
P46, codicology, single-quire codices, codex construction, collection of the Pauline letters

Introduction

One of the earliest surviving collections of the letters of Paul is the famous papyrus codex split between the Chester Beatty Library and the University of Michigan familiar to New Testament scholars as P46.[1] It is well known that the contents of this codex present something of

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a puzzle. What remains of the codex is a substantial portion of a single large quire, a stack of papyrus sheets folded in half. The final folia of this codex are lost, but according to most calculations of the original size of the codex, the lost pages would not provide sufficient space to contain the remainder of the fourteen-letter corpus of Paul's letters found in most Greek manuscripts of the letters. This situation has led a majority of scholars to conclude that this codex constitutes evidence for the circulation of a collection of Paul's letters that lacked the so-called Pastoral letters (1-2 Timothy and Titus).[2] In 1998 Jeremy Duff published an intriguing article that challenged this consensus.[3] Duff strongly emphasized a point made only in passing by earlier scholars, namely that it is possible that extra leaves were added to the large single quire to make space for additional letters.[4] Duff's argument has been critiqued from a number of angles, but one aspect of his case has not, to the best of my knowledge, been subjected to sustained scrutiny: the various ancient parallels he offered as examples of adding extra leaves to a codex in order to accommodate more text.[5] In what follows, I will take a critical look at Duff's

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[1] The authoritative edition of the codex is Frederic G. Kenyon, *The Chester Beatty Biblical Papyri, Fasciculus III Supplement: Pauline Epistles* (London: Emery Walker, 1936). Determining a date for the codex is a challenge. For a recent discussion of the issues, see Brent Nongbri, *God's Library: The Archaeology the Earliest Christian Manuscripts* (New Haven: Yale University Press, 2018) 141-144. The codex is catalogued in the Trismegistos database (hereafter TM) as 61855. On this database, see Mark Depauw and Tom Gheldof, "Trismegistos: An Interdisciplinary Platform for Ancient World Texts and Related Information," in *Theory and Practice of Digital Libraries - TPDL 2013 Selected Workshops* (ed. Łukasz Bolikowski, Vittore Casarosa, Paula Goodale, Nikos Houssos, Paolo Manghi, and Jochen Schirrwagen; Communications in Computer and Information Science 416; Cham: Springer, 2014) 40-52.

[2] The view of Bruce Metzger and Bart Ehrman is typical: "The Pastoral Epistles were probably never included in the codex, for there does not appear to be room for them on the leaves missing at the end." See Metzger and Ehrman, *The Text of the New Testament: Its Transmission, Corruption, and Restoration* (4th ed.; New York: Oxford University Press, 2005) 54.

[3] Jeremy Duff, "P46 and the Pastorals: A Misleading Consensus?" *NTS* 44 (1998) 578-590.

[4] Kenyon, for instance, had voiced this possibility already in 1936 "The last five leaves may have been left blank, or some additional leaves may have been attached at the end so as to take the Pastoral Epistles" (*The Chester Beatty Biblical Papyri, Fasc. III Supp.*, xi).

[5] Eldon Epp, for instance, engaged with multiple aspects of Duff's argument but seems to have entirely accepted the cogency of Duff's proposed material examples. See Eldon J. Epp, "Issues in the Interrelation of New Testament Textual Criticism and Canon," in *The Canon Debate: On the Origins and Formation of the Bible* (ed. Lee Martin McDonald and James A. Sanders; Peabody, Mass.: Hendrickson, 2002) 485-515, at 500 n. 55. Duff's comparanda are given a brief critical treatment in David C. Parker, *An Introduction to the New Testament Manuscripts and their Texts* (Cambridge: Cambridge University Press, 2008) 253-254, but a good deal more can be said.

proposed ancient comparanda and then reconsider the problem of the missing leaves of the Beatty-Michigan Pauline epistles codex.

The Problem of the Final Missing Folia

The surviving leaves of the codex form a single quire of 86 partially preserved folia that contain parts of nine letters of Paul in the following order:

Romans
Hebrews
1 Corinthians
2 Corinthians
Ephesians
Galatians
Philippians
Colossians
1 Thessalonians

The pages are numbered, which allows for a reasonably secure reconstruction of the size of the full quire.[6] The first surviving folium of Romans contains Rom 5:17-6:3 on the front and Rom 6:5-14 on the back. The page numbers of this folium are lost, but they can be easily calculated from the subsequent pages (whose pages numbers survive) to be 14 and 15, meaning that at least seven folia (i.e., fourteen pages) have not survived at the beginning of the codex, presuming that the pages are numbered correctly.[7] According to a recent calculation, the text of Rom 1:1-5:17 along with a title would occupy between eleven and thirteen pages of the codex.[8] It can thus

[6] As we shall see, however, this reconstruction of the number of bifolia in the quire may not be as reliable as is generally assumed. It should be regarded as an estimate.
[7] I say "at least seven folia" are missing because we should reckon with the possibility that additional unnumbered folia may have preceded the page numbered "1." This possibility will be discussed further below.
[8] See Edgar Battad Ebojo, "A Scribe and His Manuscript: An Investigation into the Scribal Habits of Papyrus 46 (P. Chester Beatty II—P.Mich.inv. 6238)" (Ph.D. diss., University of Birmingham, 2014) 228-235. Ebojo favors the hypothesis that only six folia (twelve pages) preceded the first surviving folium, but (as Ebojo notes), this would require an error in page numbering on one of the lost pages. There actually is an irregularity in numbering near the center of the codex (an opening between the pages numbered 99-100 and 101-102 is unnumbered), but it is perhaps more charitable not to conjecture additional errors on the part of the book maker.

reasonably be assumed that the book began with Romans. Depending on how the writing in the missing first folia was spaced, the beginning of the codex may have contained a numbered title page or a blank—but numbered—flyleaf. What has preoccupied scholars for decades is determining what is going on at the end of the codex. The last surviving folium is just a fragment that contains 1 Thess 5:5-9 and 5:23-28, but it is still physically joined with the first surviving folium that contains Rom 5:17-6:3 and 6:5-14. Thus, we can safely say that we have at least seven folia that have not survived at the end of the codex.[9] What could have filled these fourteen pages? It is almost certain that 2 Thessalonians followed after 1 Thessalonians.[10] Beyond this, however, questions arise. Kenyon stated the problem in the following way:

> The last page of the MS. in its present state (fo1. 97^{v} = p. 192) could have held the subscription to 1 Thessalonians, the title of 2 Thessalonians, and about twenty lines of the text of that Epistle. There are still seven leaves of the codex to account for, corresponding to the seven lost at the beginning. Two of these would suffice for the remainder of 2 Thessalonians, leaving five (ten pages) as to which we have no evidence. This is not enough for the Pastoral Epistles. Allowing for the longer lines and increased number of lines observable in the latter part of the codex, which make a page in this part of the codex equivalent to about twenty lines of Souter's Oxford text, the requirements are as follows:
>
> 1 Timothy: 167 printed lines = 8 ¼ pages of MS.
> 2 Timothy: 124 printed lines = 6 pages of MS.
> Titus: 70 printed lines = 3 ½ pages of MS.
> Philemon: 31 printed lines = 1 ½ pages of MS.
>
> 19 ¼ pages of MS.
>
> The space required is therefore nearly twice as much as is available, and by no compression of writing is it conceivable that these four Epistles could have been included.[11]

[9] Presuming that these calculations are correct, the codex when whole would have been a quire consisting of 52 bifolia, that is 104 folia or 208 pages. If, however, additional unnumbered folia existed at the beginning of the quire, we could postulate additional folia at the end of the quire. More on this possibility below.

[10] Ebojo has pointed out that the fragment containing the opening title of 1 Thessalonians—published by Kenyon as ΠΡΟC [ΘΕCCΑΛΟΝΕΙΚ]ΕΙC [Ā—actually does show a trace of the *alpha* (or more likely a supralinear stroke above the *alpha*). See Ebojo, "A Scribe and His Manuscript," 227-228. The implication is that the manuscript also contained ΠΡΟC ΘΕCCΑΛΟΝΕΙΚΕΙC B̄, that is, 2 Thess.

[11] Kenyon, *The Chester Beatty Biblical Papyri, Fasc. III, Supp.*, x, slightly adapted for clarity.

Subsequent analysis using different base texts have reached similar conclusions.[12] Most scholars have thus assumed that the codex did not contain the so-called Pastoral letters (1-2 Timothy and Titus). This conclusion has implications for how we think about the collection of Paul's letters.[13]

The Case for the Inclusion of the Pastorals

In 1998, Jeremy Duff argued that the maker of the Beatty-Michigan Pauline epistles codex had in fact intended to include the Pastorals in this copy of Paul's letters and most likely did so by adding more leaves to the end of the quire. Duff's argument unfolds in the following way. He first noted that "not long after the scribe passed the half-way point in the codex, he started fitting more and more text on each page." From this observation, Duff concluded that "the scribe was always intending to include all fourteen Pauline epistles."[14] Duff then put forward two possible scenarios for what happened: 1) Either the copyist of the codex intended to copy all fourteen of the letters traditionally attributed to Paul and failed to do so because the quire was too small, or 2) the copyist added extra pages to fit the remainder of the fourteen letters that did not fit in the single quire. Duff favored the second option and even claimed to have ancient evidence to support this hypothesis: "The adding of extra leaves seems a natural solution. However, this is more than just reasonable conjecture: we have extant other codices which do exactly this." My own contribution will be to examine these "other codices," but before doing so, I should briefly note some previously published objections to Duff's argument.

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[12] See Ebojo, "A Scribe and His Manuscript," 205-207.

[13] The question of the collection of Paul's letters is distinct from the process of canonization, in discussions of which the Beatty-Michigan codex is sometimes invoked. There is a growing recognition that "manuscripts provide important data concerning the scriptural practices of early Christianity, but their contents are not equivalent to a canon list" (Edmon L. Gallagher and John D. Meade, *The Biblical Canon Lists from Early Christianity: Texts and Analysis* [Oxford: Oxford University Press, 2017] xvii).

[14] Duff, "P46 and the Pastorals," 585. Duff's vocabulary of "intention" would seem to indicate that he presumes the copyist was working from an exemplar that contained the fourteen-letter collection. Duff did not entertain the possibility that a text or texts other than the Pastorals might have filled the last pages.

Critiques of the Case Presented by Duff

Duff's argument attracted critical attention beginning as early as 2002 when Eldon Epp challenged aspects of Duff's article.[15] First, Epp noted that Duff seems to have exaggerated the degree to which the copyist of the Pauline epistles codex actually increased the number of words per page in the second half of the codex. Duff had claimed that "in the final section of the codex there are approximately 50% more letters per page than in the middle section."[16] Epp pointed out that this comparison of amount of writing found on the central leaves of the codex and the amount found on the final leaves of the codex does not account for the sometimes large difference in the breadth between the innermost and outermost folia of a single-quire codex.[17] When like is compared with like (the early pages of the codex with the final pages), the observed increase in text per page is cut in half, to about 25%. This number is still noteworthy, but it is not as sensational as the numbers presented by Duff. In addition, Epp highlighted the possibility that, if the copyist did in fact intend to include material beyond 2 Thessalonians, the additional text need not necessarily have been the Pastorals.

In 2014, the doctoral dissertation of Edgar Battad Ebojo revolutionized the study of the Beatty-Michigan codex of Paul's letters. With a meticulous collection and presentation of codicological data, Ebojo shed light on a host of questions surrounding the manuscript. One of

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[15] Epp, "Issues in the Interrelation of New Testament Textual Criticism and Canon," 495-502.
[16] Duff, "P46 and the Pastorals," 584.
[17] In the case of the Beatty-Michigan codex of the Pauline epistles, the central folia as they are conserved at present are about 13.1 cm wide, while the final folia are as much as 15.4 cm wide, an increase in writing space of about 2.3 cm across the page, or a difference of almost 5 cm in width between the innermost and outermost bifolia. For measurements of the individual folia, see Ebojo, "A Scribe and His Manuscript," 104-109. I do not know what to make of the fact that Hugo Ibscher, who was the original conservator of the codex, reported a much larger difference in breadth between the inner and outer bifolia: "Thus, in a codex in the collection of A. Chester Beatty in London, which contains the Pauline letters, I found that there is a difference of almost 10 centimeters in width between the outer and the inner bifolia" ("So konnte ich bei einem Kodex der Sammlung A. Chester Beatty in London, der die Paulinischen Briefe enthält, die Feststellung machen, daß in der Breite zwischen dem äußeren und dem inneren Doppelblatt eine Differenz von annähernd 10 Zentimeter besteht!" See Hugo Ibscher, "Der Kodex," *Jahrbuch der Einbandkunst* 4 [1937] 3-15, at 12). Given the measurements of the surviving bifolia, I cannot see how Ibscher could be correct. If Ibscher was not referring to our codex, I am unsure what manuscript he could have had in mind.

the dissertation's many virtues is its detailed engagement with Duff's argument.[18] Key to Duff's theory that the copyist of the Pauline epistles codex intended to include the Pastorals is his observation that "the scribe has been steadily fitting more text on each page" toward the end of the codex.[19] The graph included in Duff's article seems to support this view, but Ebojo has shown that a more finely executed estimation of characters per page tells a different story. Duff's graph relied on five-page average character counts, but rather than counting the characters in the codex, Duff "counted in a computerised version of Nestle-Aland's 27th edition of the NT, adjusted to reflect the spelling used in P46."[20] Ebojo counted lines and characters on each individual page of the codex itself, accounting for lost text by making estimations based on scribal practice in the immediate context. This more methodologically sound method of counting demonstrates that there is indeed a steady increase in characters beginning on folium 77 but that this increase reverses itself after folium 81, and then the folium-to-folium change in number of characters fluctuates up and down without a discernable pattern for the remainder of the codex.[21] Beyond this, Ebojo observes that the copyist seems not to maximize available space for writing in other ways in the second half of the codex (for instance by reducing script size or reducing the space occupied by titles and decorative elements). Such adjustments might be reasonably expected if Duff's hypothesis were correct.

The end result of the appreciative criticism of Epp and Ebojo is to show that while the phenomenon that Duff emphasized (more text in the second half of the codex) is real, the trend is not as pronounced or as regular as Duff made it appear. In my view, the most compelling kinds of evidence for the argument that Duff makes would be ancient analogues. Some ancient codices

[18] Ebojo treats Duff's article in "A Scribe and His Manuscript," 204-219.
[19] Duff, "P46 and the Pastorals," 585.
[20] Duff, "P46 and the Pastorals," 583 n. 14.
[21] The data is drawn from "Appendix J" in Ebojo, "A Scribe and His Manuscript," 486-487.

have survived in a state of preservation superior to that of the Pauline epistles codex. If some of these codices show unambiguous evidence for the kind of scenario that Duff proposes, then his hypothesis may still be considered plausible, even if he has overstated his case somewhat. So, let us turn to the material evidence to which Duff appeals.

The Material Evidence

What potential analogues does Duff bring to the conversation? For the suggestion of adding extra leaves to the codex in order create sufficient space to include the Pastoral Epistles, Duff appeals in the first instance to the Nag Hammadi codices as a group:

> One way of providing extra space is for single leaves to be added. For example the majority of the Nag Hammadi codices have extra leaves added. The single leaves in the Nag Hammadi codices occur individually throughout the codex, not in a string at the end and were perhaps caused by the bookmaker occasionally using up small pieces from the end of rolls of papyri. Thus we do not have an exact parallel here with what we would need in P46—four single leaves stuck in together—but it does show very clearly that it was perfectly possible to add extra single leaves into the bindings.[22]

The phenomenon that Duff is describing in the Nag Hammadi codices is the occurrence of what historians of bookbinding would call "stubbed singletons," sheets (in this case, papyrus sheets) that were longer than the length of a single folium but not sufficiently long to form a full bifolium. Thus, the binder would still be able to fold the sheet and bind it in the quire, but only one usable folium would be made as a result (the stubbed singleton). On the other side of the fold, only a stub would be present (see Figure 1).

[22] Duff, "P46 and the Pastorals," 587.

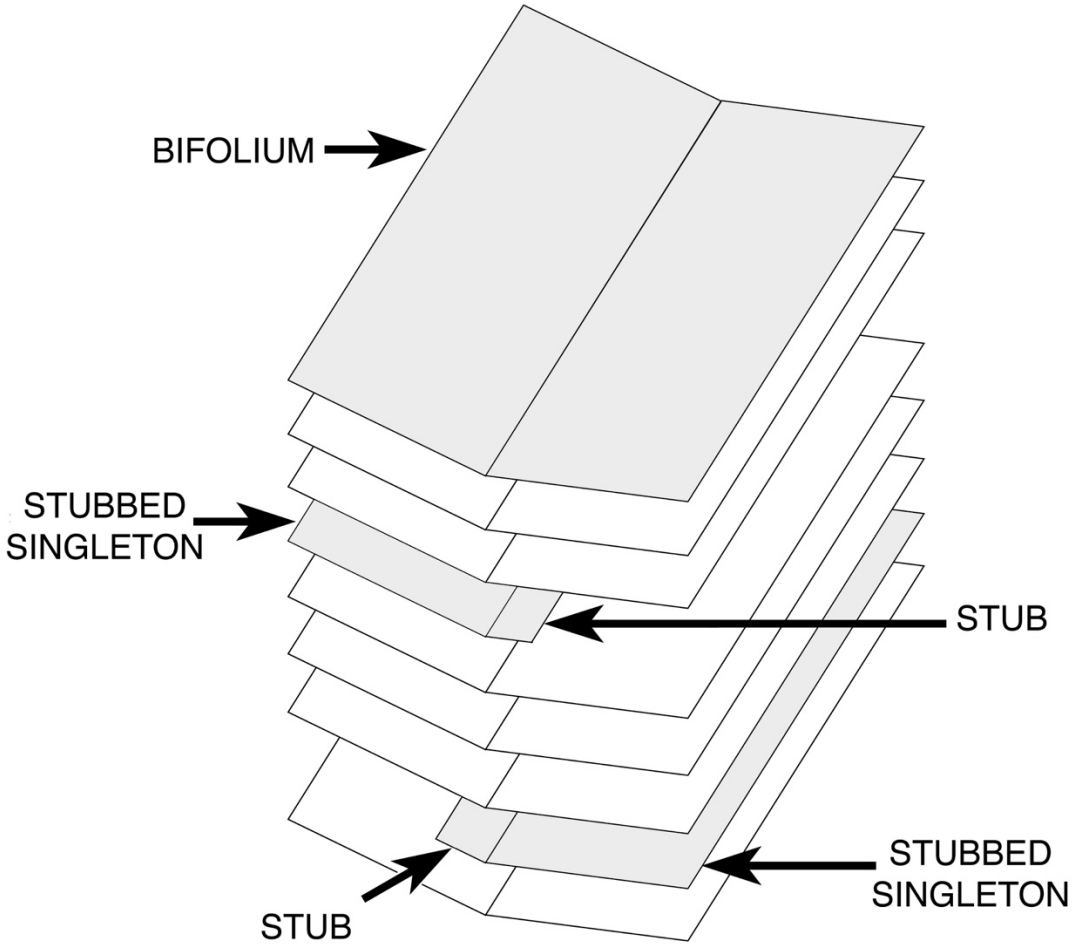

Figure 1: A stack of bifolia including two stubbed singletons, demonstrating the even distribution of stubbed singletons in both halves of the quire; illustration by Brent Nongbri

Crucially, however, in the case of the Nag Hammadi codices, these stubbed singletons are part of the *planned construction* of the codices. They are not "extra leaves added" as an afterthought, and they do not constitute an example of "the bookmaker *occasionally* using up small pieces from the end of rolls of papyri," as Duff indicates (my emphasis). Instead, the construction of the Nag Hammadi books and other early single-quire papyrus codices point to the *systematic* inclusion of these stubbed singletons as simply another bifolium in the stack being cut from the roll of papyrus. In at least some cases, stubbed singletons were included in such a way that the papyrus stack was kept level, with the stub being placed alternatively on the left side and right

side of the stack for an even distribution of stubs on both sides of the folded quire. The conservator Hugo Ibscher had noted this point already in the early twentieth century in his analysis of the Berlin Akhmimic Proverbs codex (TM 107968):

> The occurrence of half sheets [i.e., stubbed singletons]—in the present codex, sheets 6, 26, and 37—has often been explained by the fact that the scribe was forced to remove or insert half a sheet, whether as a result of scribal errors or some other oversight. Our codex, however, provides evidence that this assumption is not valid, but that when the sheets were cut from the roll, smaller pieces were left at the end, which were used out of economy. … The maker of the codex placed the sheets cut from the roll on top of each other in order as they were taken. Sheet 6 was the end of the first papyrus roll, half a sheet. It was placed so that it came into the first half of the book block after folding the quire. Then whole sheets followed again, until sheet 26, which gave only half a sheet and was placed by the maker of the book in such a way that it came into the second half [of the quire]. With sheet 37, the process is repeated; it is again assigned to the first half. We can see that the half sheets were not inserted or cut out later but were alternately placed during the production of the book block in order to make it even.[23]

What the Nag Hammadi codices and the Berlin Proverbs codex witness, then, is not a case of "adding single leaves" into an existing binding. Stubbed singletons are a feature of the make-up of these codices, which explains why, when they are found, they occur throughout the codex (see Figure 1). The phenomenon that Duff imagines would require a series of stubbed singletons being added to *the end* of the single quire, resulting in an equal number of stubs being found as

[23] See Ibscher's posthumous contribution to the edition of the codex ("Beschreibung der Handschrift") in Alexander Böhlig, *Der achmimische Proverbientext nach Ms. Berol. Orient. Oct. 987* (Sudien zur Erforschung des christlichen Aegyptens 3; Munich: Robert Lerche, 1958) xxi-xxvii, at xxii-xxiv: "Das Vorkommen von halben Blättern, im vorliegenden Codex Blatt 6, 26 und 37, wurde vielfach damit erklärt, daß der Schreiber genötigt war, sei es infolge von Schreibfehlern oder irgendeinem anderen Versehen ein halbes Blatt zu entfernen oder einzufügen. Unser Codex liefert nun aber den Beweis, daß diese Annahme nicht stichhaltig ist, sondern daß beim Zuschneiden der Blätter aus der Rolle an ihrem Ende kleinere Stücke übrig blieben, die aus Sparsamkeit mit verwendet wurden. Aus demselben Grunde sind auch die Schutzstreifen der Rollen mit verwendet worden. … Der Verfertiger des Codex legte die aus der Rolle geschnittenen Blätter der Reihe nach, wie er sie entnahm, übereinander. Blatt 6 war das Ende des ersten Papyrusstreifens, gab aber nur noch ein halbes Blatt her; er legte es so, daß es nach dem Falzen der Blätter in die erste Hälfte des Buchblockes kam. Dann folgten wieder ganze Blätter, bis Blatt 26, das nur ein halbes Blatt hergab und vom Verfertiger des Buches so gelegt wurde, daß es in die zweite Hälfte kam. Mit Blatt 37 wiederholt sich der Vorgang; es wird wieder der ersten Hälfte zugewiesen. Man sieht also daß die halben Blätter nicht nachträglich eingefügt oder herausgeschnitten wurden, sondern schon bei der Herstellung des Buchblocks ihren Platz abwechselnd bekamen, um diesen gleichmäßig zu gestalten."

the first "folia" of the codex. I am not aware of examples of this phenomenon among surviving single-quire codices.[24]

Duff next refers to two cases in which, according to his understanding, additional short quires have been added to a larger quire in order to provide space for supplying additional text. The first example he cites is a codex of Origen from the Tura find (TM 62345):

> Origen's *On the Passover,* found at Toura in Egypt, consists of three quires each of four sheets (sixteen pages) in the main part of the codex, giving forty-eight pages. However, the scribe appears to have run out of space a page and a half before the end. Therefore there is a final very short quire of just one sheet (four pages).[25]

This description is accurate as far as it goes, but it omits some complicating factors. There is some question as to whether or not this book also included Origen's *Dialogue with Heraclides*. When the four quires of Origen's *On the Passover* were found, they were rolled up into a bundle with two more quires of identical dimensions.[26] Both of these quires originally contained four bifolia (sixteen pages) each, containing the full text of Origen's *Dialogue* on pages 1-28 and a surviving blank folium (pages 29-30). The final folium of the second quire was apparently missing. That all six of the quires formed a single book seems likely but is not certain. Several factors speak in favor of all six quires forming a single book. As noted, the sizes of the pages are identical. The layout of the text block on the page is also very similar.[27] In addition, the external fold of the outermost sheet of each quire shows the remains of attachment to a leather cover. And of course there is the fact that the quires were found bundled together. Against the hypothesis

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[24] This does not mean that there are no such examples, but if there are, I have not seen them. It has sometimes been thought that the (lost) first folium of the quire of Nag Hammadi Codex II was a stub (Bentley Layton, *Nag Hammadi Codex II,2-7* [NHS 20; Leiden: Brill, 1989] 3), but, as I outline below, there is a better explanation for what is happening at the beginning of this particular codex.

[25] Duff, "P46 and the Pastorals," 588.

[26] Octave Guéraud, "Note préliminaire sur les papyrus d'Origène découverts à Toura," *Revue de l'histoire des religions* 131 (1946) 85-108, esp. 92-94 and plate V.

[27] Images of this codex can be viewed at the Photographic Archive of Papyri in the Cairo Museum through the Center for the Study of Ancient Documents: http://ipap.csad.ox.ac.uk/4DLink4/4DACTION/IPAPwebquery?vPub=Publ.Sorb.Pap.&vVol=1&vNum=684.

that the quires formed a single book is the fact that there are two distinct sets of quire signatures (A-B for the two quires of the *Dialogue*, and [A]-D for the four quires of the *Passover*). Also, the two works are copied in different hands (and probably by different copyists).[28] In my view, the weight of the evidence leans toward all the quires belonging to a single codex, in which case the order of the quires becomes a question.[29] It may be the case that the quires of *On the Passover* preceded those of the *Dialogue* (which also happens to end with blank folia after the conclusion of the text).

But whether it consisted of only the four quires of the *Passover* or the extra two quires of the *Dialogue* as well, we are dealing here with a *multi-quire codex*. And the most important point to note is this: Adding an additional small quire to the end of a multi-quire codex is a very different operation from adding a small quire of additional leaves to a fairly large single-quire codex like the Beatty-Michigan Pauline epistles codex.[30] The surviving leaves of the Pauline epistles codex show a pattern of holes in the central folds that is consistent with a construction style like that of the majority of the Nag Hammadi codices, a pair of tackets passed through the central fold of the quire and tied off on the outside of the spine.[31] When we turn to the Tura Origen codex, we find that the remains of the binding threads and parchment stays in the centers of the quires are indicative of a typical link-stitch binding commonly found in early multi-quire codices. When working with such multi-quire codices, adding an additional small quire is just a matter of pulling the same binding thread or threads through one more in a series quires. Adding

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[28] It should be recalled, however, that multiple different copyists often cooperated on a single codex. Codex Sinaiticus is a famous example. See H. J. M. Milne and Theodore C. Skeat, *Scribes and Correctors of the Codex Sinaiticus* (London: British Museum, 1938).

[29] This point is discussed in Kurt Aland and Hans-Udo Rosenbaum, *Repertorium der griechischen christlichen Papyri II, Kirchenväter-Papyri, Teil 1: Beschreibungen* (PTS 42; Berlin de Gruyter, 1995) 476-477 nn. 1 and 2.

[30] Parker is also correct to note that the Tura Origen codex was likely produced considerably later than the Beatty-Michigan Pauline epistles codex (Parker, *An Introduction to the New Testament Manuscripts*, 253), but the more salient point is that the Origen codex is bound in a manner entirely different from a single-quire codex.

[31] See Nongbri, *God's Library*, 140-141.

a quire of additional leaves to the end of a single-quire codex, on the other hand, would entail an entirely different, and more complicated, mode of attachment.[32] The Origen codex does not represent a helpful comparison for the procedure that Duff proposes for adding a quire to the Pauline epistles codex.

Duff's second proposed example of a quire being added to accommodate an unexpected surplus of text is Nag Hammadi Codex I (TM 107741):

> Similarly Nag Hammadi codex one consists of a first quire of twenty-two sheets, a second of eight and a third of six sheets. Robinson, the editor of the codex, suggests that the second and third quires were probably added by the scribe when he realised he had miscalculated the amount of space the text he was copying would require.[33]

The basic physical description of the codex is again accurate.[34] The reasoning provided, however, is not compelling and in fact is not an entirely fair representation of what James Robinson actually wrote.[35] In the passage cited by Duff, Robinson did indeed state that the second and third quires of Codex I were small relative to the size of the first and "hence it has been suggested that they were added as an afterthought," citing the opinion of Rodolphe Kasser.[36] Yet Robinson hastened to add, "this postulate would involve a considerable miscalculation by the scribe." This description is perhaps an understatement. By beginning with a quire of twenty-two bifolia and then having to supplement two quires containing a total of fourteen additional bifolia, the book maker would in such a scenario have underestimated the necessary amount of writing surface by almost 40%. This is possible but hardly likely. The

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[32] I am not aware of examples of this kind among surviving single-quire codices. The possible exception would be Nag Hammadi Codex I, which is discussed in more detail below.
[33] Duff, "P46 and the Pastorals," 588.
[34] On the peculiar construction of Nag Hammadi Codex I, see Nongbri, *God's Library*, 34-35.
[35] Parker also attributes this view to Robinson. See Parker, *An Introduction to the New Testament Manuscripts,* 253.
[36] James M. Robinson, *The Facsimile Edition of the Nag Hammadi Codices: Introduction* (Leiden: Brill, 1984) 40, citing Rodolphe Kasser et al., *Tractatus Tripartitus Pars I* (Bern: Francke, 1973) 4 n. 12. In fact, Kasser's scenario is even more complicated than just a single miscalculation. Kasser (who at the time believed Codex I consisted of four rather than three quires) imagined that the book maker miscalculated three(!) times, in each instance adding a new quire as a result.

admittedly strange structure of Nag Hammadi Codex I is probably due to factors other than miscalculation of space and is therefore not a compelling comparandum for the proposed addition of a small quire to the Pauline epistles codex.[37]

Before leaving Nag Hammadi Codex I, however, it is worth thinking a little further about these codices as three-dimensional objects. The number of bifolia in the largest quire of Nag Hammadi Codex I is 22. The number of bifolia in the Beatty-Michigan codex is, according to Kenyon's reconstruction, 52. This is more than double the size of the first quire of Nag Hammadi Codex I (in fact, it is more than the *total* number of 36 bifola in Nag Hammadi Codex I). Folding a stack of 52 papyrus sheets results in quire of considerable thickness.[38] The awkward process of attaching additional quires to the first quire of Nag Hammadi Codex I would be made much worse if the first quire were more than twice as thick and the quire to be attached consisted of just a few folia.[39] From a purely practical standpoint, Nag Hammadi Codex I does not provide an ideal comparandum for the hypothetical addition of a small quire to the Beatty-Michigan codex. It appears, then, that all of Duff's ancient examples are either somewhat misleadingly presented or dubiously interpreted.

I should make a few additional remarks on one other codex that has been brought into this discussion. In the course of his critique of Duff's article, David Parker mentioned another ancient book as potential comparative evidence for a codex containing just ten letters of Paul: "Note that the same set of ten letters, but in the order Romans–1/2 Corinthians–Hebrews–

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[37] My own view is that Nag Hammadi Codex I represents a kind of experiment—an intermediate stage of development for an individual book maker who recognized the limitations of overly large single quire codices but who had not yet acquired the craftsmanship to produce what we think of today as a more standard multi-quire codex.

[38] Folding a stack of 52 sheets of good quality modern papyrus sheets yields a quire that is about 3.2 cm thick (roughly 1.25 inches) in a compressed state.

[39] According to Kenyon's calculations, the inclusion of Philemon and the Pastorals in the Beatty-Michigan codex would require the addition of about ten pages, or two bifolia and a singleton. When we envision these codicological units in three dimensions, it is clear that tacking on such a small quire to the large mass of a 52-bifolia quire would hardly be a functional solution.

Galatians–Philippians–Ephesians–1/2 Thessalonians–Colossians, is found in the fifth-century Middle Egyptian codex."[40] The reference here is to P.Mil.Copt. 1 (TM 107795). The comparison is not entirely apt. This Coptic codex in Milan was edited in 1974 by Tito Orlandi.[41] Like the Beatty-Michigan Pauline epistles codex, it is both a single-quire codex and also missing several folia at the beginning and end of the quire. The Milan codex is considerably more damaged, and its structure is more challenging to reconstruct. Orlandi estimated that the codex was made up of about 150 folia, i.e., 300 pages. In regard to the contents, Orlandi made the following observations:

> As we can see, the last folium (p. 288) contained a passage from the letter to the Colossians. The question then arises whether or not the codex contains the pastoral letters. This problem can be solved in a purely hypothetical way, taking as a starting point the fact that each page of the Thompson edition of the letters in Sahidic corresponds to approximately two pages of our codex. Between the last fragment and the end of the codex there are about 12 pages missing (according to our calculations), i.e., a little more than is necessary to finish the letter to the Colossians (6 pages), but much less than would be necessary to contain also the Pastorals. One must, however, keep in mind that: (a) the mid-point of the codex could also be towards p. 170 (and thus about 50 pages would be lost at the end, enough to contain the Pastorals); (b) additional sheets could have been added at the end of the main quire (although this seems unlikely to us, given the size of the main quire). With all of the above, it remains in our opinion more likely that the Pastorals were not included in the Oxyrhynchite collection.[42]

The difficulty here is that a large part of the central portion of the codex is missing. The last surviving material from the first half of the codex is a fragment containing 2 Cor 11:26-12:4

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[40] Parker, *An Introduction to the New Testament Manuscripts*, 253.

[41] Tito Orlandi, *Lettere di San Paolo in Copto-ossirinchita* (Papiri della Università degli Studi di Milano 5; Milan: Istituto editorial cisalpino, 1974).

[42] Orlandi, *Lettere di San Paolo in Copto-ossirinchita*, 11: "Come si vede, l'ultimo foglio (p. 288) conteneva un passo della lettera ai Colossesi; ci si chiede allora se il codice contenesse o meno le lettere pastorali. Questo problema può essere risolto in via puramente ipotetica, prendendo come base il fatto che ogni pagina dell'edizione Thomspon delle lettere in saidico corrisponde all'incirca a 2 pagine del nostro codice. Fra l'ultimo frammento e la fine del codice mancano (secondo i nostri calcoli) circa 12 pagine, cioè un po' più di quanto occorre per terminare la lett. ai Col. (6 pagine), ma assai meno di quanto occorrerebbe per contenere anche le pastorali. Bisogna tuttavia tener presente che: (a) la metà del codice potrebbe essere anche verso p. 170 (e quindi sarebbero perdute alla fine circa 50 pagine, sufficiente a contenere le pastorali); (b) potevano essere aggiunti alla fine del quaderno principale dei fogli supplementari (sebbene questo ci sembra improbabile, data l'estensione del quaderno principale). Con tutto ciò, resta secondo noi più probabile che le pastorali non fossero comprese nella raccolte ossirinchita."

(perhaps pages 149-150).[43] Up to this point, vertical fibers precede horizontal fibers. After a substantial lacuna, the next surviving folium contains pages 177-178 (Heb. 6:15-7:6), on which horizontal fibers precede vertical. It is not presently known at what point between page (ca.) 150 and page 177 the center of the codex lies. Orlandi presumed that the middle of the codex was around pages 150-151, but as the quotation above indicates, he allowed for the possibility that the central bifolium could be as late as pages 170-171.[44] If, however, we follow Orlandi's rule of thumb that "the Thompson edition of the letters in Sahidic corresponds to approximately two pages of our codex," we can calculate that about 40 pages would be needed in the Milan codex to contain the remainder of Colossians, 1-2 Timothy, Titus, and Philemon.[45] This would make the total number of pages 328, placing the midpoint at the opening of pages 164-165. This would seem to be a sensible reconstruction of the codex.[46] At 82 bifolia, this would be a very large (thick) single-quire codex, but it is not impossible.[47] At any rate, because of the defective ending

[43] The last surviving actual page number in 139-140 (2 Cor 6:17-7:10) but a fragment containing 2 Cor 11:26-12:4 also shows vertical fibers preceding horizontal.

[44] In theory, this problem should be relatively easy to solve. Since we are dealing with a single-quire codex, identifying the two sides of just a single bifolium through continuity of fiber patterns would allow the center of the codex to be calculated. I have not examined these folia in person, but the suggested procedure is at least hypothetically possible.

[45] The reference is to Herbert Thompson, *The Coptic Version of the Acts of the Apostles and the Pauline Epistles in the Sahidic Dialect* (Cambridge: Cambridge University Press, 1932). In Thompson's edition, the remainder of Colossians after 3:18 occupies about 2.5 pages, and 1 Timothy, 2 Timothy, Titus, and Philemon take up about 17.5 pages. Thus, we might calculate that in the Milan codex would have had about 40 pages after page 288.

[46] We can to a certain extent check the plausibility of this calculation. Given that the combined texts of Romans, 1 Corinthians, and 2 Corinthians account for about half of the total text in the traditional fourteen-letter corpus, we might imagine a mid-point in this codex somewhere near the beginning of the letter to the Hebrews. If we use the same method (one page of Thompson text is equal to about two pages of the Milan codex), we can calculate back from the first surviving page of Hebrews to conjecture the page number for Heb 1:1. The first surviving page of Hebrews in the Milan codex is numbered 177 and it begins with Heb 6:15. In Thompson's edition, the text of Heb 1:1-6:15 occupies about seven pages. If we subtract (2 x 7 =) 14 from 177, we 163 for the beginning of Hebrews. The hypothetical center of the codex on pages 164-165 does indeed fall close to the beginning of Hebrews.

[47] The largest assured single-quire codex of which I am aware is the papyrus codex containing Ezekiel, Daniel, Susanna, and Esther that is split between the Chester Beatty Library, Cologne, Madrid, Barcelona, and Princeton (TM 61933). Some of the bifolia survive intact, and there were likely at least 236 numbered pages (that is to say, the quire was likely made up of at least 59 bifolia). See Nongbri, *God's Library* 151-152.

of the Milan codex, it should probably *not* be regarded as reliable evidence for the circulation of corpus of Paul's letters containing only these particular ten epistles.

Insights from Other Single-Quire Codices?

Much of my argument here has consisted of refuting proposed analogies for the evidence presented to us by the Beatty-Michigan codex of Paul's letters. Aside from these negative conclusions, can anything positive be added to this discussion? Revisiting some of the early surviving single-quire codices does yield some useful data for the problem of the missing leaves at the end of the Pauline epistles codex. Recall that Kenyon had raised the possibility that after 2 Thessalonians, "the last five leaves may have been left blank."[48] And in fact, several surviving single-quire codices do end with one or more blank pages. This practice seems to have been tolerated with some regularity in antiquity. For instance, the Berlin Akhmimic Proverbs codex and Nag Hammadi Codex V (TM 107745) both conclude with three blank pages (the verso of one folium and both sides of a second folium).[49] Nag Hammadi Codex IV (TM 107744) appears to end with five blank pages (the verso of one folium and both sides of a second and third folium).[50] And it may be that this practice was even more common than the extant remains attest. To the modern finders of early codices and codex fragments, blank pages were not considered to be as important as those that caried text and hence may have not always been preserved even when they survived from antiquity but were found by people without the training necessary to

[48] Kenyon, *The Chester Beatty Biblical Papyri, Fasc. III, Supp.*, xi.
[49] For the Proverbs codex, see Ibscher, "Beschreibung der Handschrift," xxii. For Nag Hammadi Codex V, see James M. Robinson, *The Facsimile Edition of the Nag Hammadi Codices: Introduction* (Leiden: Brill, 1984) 83.
[50] See the discussion in Alexander Böhlig and Frederik Wisse, *Nag Hammadi Codices III, 2 and IV, 2 The Gospel of the Egyptians* (NHS 4; Leiden: Brill, 1975) 8-9. See also Robinson, *The Facsimile Edition of the Nag Hammadi Codices: Introduction*, 83.

recognize their value.[51] The fact that blank pages occur with some frequency at the end of single-quire codices should keep us open to the possibility that the lost portion of the Pauline epistles codex consisted largely of blank pages, as Kenyon had suggested.[52]

Comparative evidence that is potentially even more illuminating comes from what we find at the *beginnings* of well-preserved single-quire codices. Several of the Nag Hammadi codices begin with flyleaves that are unnumbered.[53] The quire of Nag Hammadi Codex VII (TM 107747) appears to have begun with two blank unnumbered folia, one used as a flyleaf and one used as a pastedown in the front cover.[54] Nag Hammadi Codex II (TM 107742) seems also to have begun with a pair of blank folia treated in the same way, though in this case, the front side of the pastedown in the back cover was inscribed with the ending of the last tractate in the codex, producing even more of an asymmetry in the number of inscribed pages in the two halves of the codex.[55] In other words, the second half of Nag Hammadi Codex II contains more inscribed

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[51] For instance, the reconstruction of the structure of Nag Hammadi Codex III (TM 107743) has been carried out in a very thorough manner by Stephen Emmel, who concluded that the codex probably ended with seven blank pages after the closing of the last tractate, though only one blank page (on the back of an inscribed page) has survived. See Stephen Emmel, *Nag Hammadi Codex III, 5 The Dialogue of the Savior* (NHS 26; Leiden: Brill, 1984) 26.

[52] Duff objected to this hypothesis on the grounds that no other codices show "a similar bizarre arrangement of increasing amounts of text on each page near the end of the codex followed by many blank pages" ("P46 and the Pastorals," 584), but, as Ebojo has shown, the claim that there are "increasing amounts of text on each page near the end of the codex" is not accurate.

[53] Nag Hammadi Codices II, III, IV, V, VII, VIII, and XI begin with unnumbered flyleaves. Nag Hammadi Codex I, which is not a single quire codex, also begins with an unnumbered (though inscribed) flyleaf.

[54] See Frederik Wisse, "Introduction to Codex VII" in *Nag Hammadi Codex VII* (ed. Birger A. Pearson; NHMS 30; Leiden: Brill, 1996) 2: "The bottom sheet of the quire was glued down over the cartonnage to function as endpapers."

[55] The blank pastedown that I am suggesting existed at the beginning of Nag Hammadi Codex II has not survived, but its existence may be reasonably assumed for the following reasons: (1) Jean Doresse reported that the last folium of Nag Hammadi Codex II (containing page 145) was "intentionally pasted on the inside of the back cover." (2) The folium containing pages 143-144 was conjoint with the blank front flyleaf, meaning that the folium containing page 145 that was pasted down to the inside of the back cover was most logically conjoint with a "partner" folium pasted down to the inside of the front cover. (3) A recent examination of the inside of the front cover of Codex II reports the presence of an "accretion [that] appears to be adhesive residue." See Jean Doresse, "Les reliures des manuscrits gnostiques coptes découverts à Khénoboskion," *Revue d'Égyptologie* 13 (1961) 27-49, at 45: "Notons seulement que la dernière page du codex, écrite seulement sur son recto, semble avoir été collée volontairement sur le dedans du plat inférieur, auquel elle adhérait effectivement lorsque nous eûmes l'occasion d'examiner ce manuscrit"; Julia Miller, *Meeting By Accident: Selected Historical Bindings* (Ann Arbor: Legacy, 2018) 496.

pages than the first half.[56] The Berlin Akhmimic Proverbs codex presents further interesting evidence. Hugo Ibscher noted that the outermost folia of this single-quire codex were incorporated into the leather cover of the codex along with waste papyrus to help stiffen the cover.[57] What all of this demonstrates is (1) the two halves of single-quire codices need not have equal numbers of inscribed pages and (2) the numbering of pages in single-quire codices did not necessarily commence at the beginning of the *quire*. Phrased in another way: Page numbering of single-quire codices is not necessarily an exact guide to the total number of bifolia that originally made up the quire. This observation may appear obvious, but this fact has not, to my knowledge, been brought into conversation with the problem of the Beatty-Michigan codex of Paul's letters.[58] It raises the possibility that the quire was larger than Kenyon's calculation of 52 bifolia. Such a possibility means that *more* than seven folia (fourteen pages) might be missing from the

[56] The numeration of the pages in Nag Hammadi Codex II is modern. By simply counting the inscribed pages, we find that there are 70 inscribed pages in the first half of the codex and 75 inscribed pages in the second half. The front flyleaf is conjoint with (the inscribed) pages 143-144, and the (presumed) blank front pastedown was conjoint with the back pastedown, which had page 145 inscribed on its recto. The two "extra" inscribed pages in the second half of the codex are due to the presence of a blank folium (perhaps a large stub) in the first half of the codex conjoint to pages 93 and 94 in the second half of the codex.

[57] This is at least how I understand Ibscher's somewhat confusing description: "The cover of the book consists of 6 to 8 layers of papyrus, which, when glued on top of each other, resulted in a strong cardboard. The outer sheets of this cardboard contain remains of Greek writing, while the inner ones are apparently blank. It fits well with this that from the first papyrus roll, before the surviving sheet 1 of the codex, four more sheets have been taken from the first papyrus roll [from which the bifolia were cut] that are not found in the codex and were probably used to strengthen the book cover and were bound through at the same time" (Hugo Ibscher, "Von der Papyrusrolle zum Kodex," *Archiv für Buchbinderei* 20 [1920] 21-40, at 39: "Der Buchdeckel besteht aus 6 bis 8 Papyruslagen, die übereinandergeklebt eine starke Pappe ergaben. Die äußeren Blattlagen dieser Pappe enthalten griechische Schriftreste, während die inneren anscheinend unbeschrieben sind. Hierzu paßt es gut, daß aus der ersten Papyrusrolle, vor dem erhaltenen Blatt 1 des Codex, noch vier Blatten entnommen sind, die sich im Kodex nicht vorfinden und wahrscheinlich zur Verstärkung des Buchdeckels verwendet und gleich mit durchgeheftet wurden"). I take heart from the fact that Theodore C. Petersen showed a similar understanding: "The papyrus boards of the binding were found by Dr. Ibscher to have been built up of six to eight papyrus leaves pasted one over the other. Several of the innermost of these were found to have been sewn as part of the original codex, i.e., as its outermost sheets." See Theodore C. Petersen, *Coptic Bookbindings in the Pierpont Morgan Library* (edited by Francisco H. Trujillo; Ann Arbor: Legacy, 2021) 430. It is unclear how common this type of construction was among single-quire codices. I know of no other documented examples. J.A. Szirmai, citing Ibscher's "Der Kodex," mentions another alleged example of this phenomenon, but he has misread Ibscher's reference, which is almost certainly to the Berlin Proverbs codex (Szirmai, *The Archaeology of Medieval Bookbinding* [Aldershot: Ashgate, 1999] 12).

[58] Ebojo does note that the page numbers might not be a reliable guide to determining the number of missing folia, but he takes the argument in a rather speculative direction by proposing pagination errors in the missing pages (see n. 8 above).

end of the quire. From Ibscher's description of the Berlin Proverbs codex, it seems that blank folia both at the *beginning* of the book block *and* the end have been treated in a similar way: Four bifolia (=eight folia) were used in the cover: four folia in the front cover and four folia in the back cover. But an exactly even distribution of these blank folia at the beginning and end of the quire may not have been strictly necessary. With a quire as large as that of the Beatty-Michigan Pauline epistles codex, it is relatively easy to imagine a front cover making use of a few more blank folia than the back cover.[59] Combine this with a blank pastedown and/or an unnumbered flyleaf, and we may well be able to propose a sufficient number of "extra" folia in the second half of the quire to contain the traditional collection of fourteen letters known from later Greek manuscripts.[60] It would of course be preferable to have an extant example of this exact construction phenomenon, but it seems at least plausible that this kind of scenario could account for a few additional missing folia at the end of the Beatty-Michigan quire. In any event, the original number of bifolia in this quire is less certain than is generally acknowledged.

Conclusions

We still have much to learn about early single-quire codices and what constituted "normal" practice for the makers of these books. Duff's article performed a service by challenging a complacent and largely unreflective consensus with regard to the contents of the Beatty-Michigan Pauline epistles codex. Duff's positive hypothesis about the addition of extra

[59] Practical experience building models suggests to me that most single-quire papyrus codices, especially thicker ones like the Beatty-Michigan codex, likely had leather covers of some sort that were equipped with wrapping bands. When single-quire papyrus codices are left without covers, the papyrus leaves tend to curl and the quire does not remain closed. The outer folia are also very easily damaged.

[60] This is not a conclusion that I expected to reach when I began to write this article. I set out to correct Duff's interpretations of the Nag Hammadi codices and the Tura Origen codex and their relevance for the question of the contents of the Beatty-Michigan codex. Nevertheless, revisiting the evidence of the surviving single-quire codices has convinced me that we must adopt a more flexible view of the number of missing folia at the end of the Beatty-Michigan codex.

folia as an afterthought is, however, impossible to prove. And as we have seen, the material comparanda he adduced did not support his case. Yet, Duff's argument serves as a good reminder that we cannot simply *assume* the contents of the missing folia. We cannot say, for instance, that the Beatty-Michigan codex is secure evidence for the circulation of a ten-letter collection of Paul's letters, as has occasionally been argued.[61] In fact, as we have seen, we must be cautious about assuming the *contents* of the missing folia at the end of the quire because we may have had too much confidence about our knowledge of the *number* of missing folia at the end of the quire.

Nevertheless, based on the evidence we have surveyed, I think we can make some cautious conclusions about the contents of the missing folia at the end of the codex: (1) Ebojo has demonstrated that it is reasonable to conclude that 2 Thessalonians followed 1 Thessalonians.[62] (2) It should be kept in mind that Kenyon's original suggestion that the codex concluded with a few blank folia following the end of 2 Thessalonians is plausible, given the apparent acceptability of this practice.[63] (3) We should, however, also allow for the possibility that we have underestimated the size of the quire (and hence the number of missing folia at the end of the quire). By tying his estimate of the size of the quire to the numbering of the pages, Kenyon may have created a false problem that has needlessly frustrated subsequent generations of scholars.

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[61] See, for example, Jerome D. Quinn, "P46—The Pauline Canon?" *CBQ* 36 (1974) 379-385, at 379.
[62] See n. 10 above.
[63] Ebojo seems to favor this hypothesis ("A Scribe and His Manuscript," 234-235).