

The Dating of New Testament Papyri

DON BARKER

Department of Ancient History, Macquarie University, Sydney 2109, Australia.
email: don.barker@mq.edu.au

The narrow dating of some of the early New Testament papyri and the methodological approach that is used must be brought into question in the light of the acknowledged difficulties with palaeographical dating and especially the use of assigned dated literary papyri. The thesis of this paper is that the way forward in dating New Testament papyri, or for that matter any undated literary papyri, is first to locate the manuscript in its graphic stream and using, on the whole, dated documentary papyri belonging to the same stream, come to an approximate understanding of where in the history of the stream the manuscript lies. The following New Testament Papyri will be so treated: P⁵², P⁶⁷⁺ and P⁴⁶.

Keywords: Dating, New Testament papyri, P⁴, P⁴⁶, P⁵², P⁶⁴

1. Introduction

We do not know: how writing was taught in detail, how the ancients regarded particular styles of scripts, why they used one rather than another (one style only to each scribe or scriptorium? or a choice? If so, what sort of choice? At whom [*sic*], by the genre of text, by the format of the book?), how styles spread and changed, lapsed and were revived.¹

Palaeographical analysis is fraught with difficulties as Parsons acknowledges. We may also add to this lament that the thickness of the reed pen, individual variants due to creativity or distortions caused by a scribe's haste, the age of the scribe and deliberate archaisms, may also 'muddy the waters'.² In learning to write, a student presumably would seek to emulate the style of his teacher, but with the passing of time those writing characteristics would become only the underlying method of writing and individual characteristics may develop

1 P. J. Parsons, 'Guglielmo Cavallo, Ricerche sulla maiuscola biblica', *Gnomon* 42.4 (1970) 378.

2 See S. R. Pickering, 'The Dating of the Chester Beatty-Michigan Codex of the Pauline Epistles (P⁴⁶)', *Ancient History in a Modern University*, vol. 2 (ed. T. W. Hillard et al.; Grand Rapids: Eerdmans, 1998) 226.

that are unique to the scribe.³ Further comparative difficulties arise in that it is difficult to compare like with like, in other words documentary manuscripts, which are dated, are often compared to undated book manuscripts. In some cases this difficulty can be overcome by being able to compare undated book manuscripts with book manuscripts that can be reasonably dated from information such as a dated document on the recto or verso or with dated documentary manuscripts that are written in a 'book' style. Where no such control exists palaeographers often resort to assigned dated literary manuscripts as comparanda which of course leads to circularity of argument.

2. Methodological Considerations

A stricter methodology is needed especially in regard to the dating of some of the NT papyri. First and foremost identification of the graphic stream to which a hand belongs is of vital importance as it helps in identifying the fundamental peculiarities of a hand.⁴ With the aid of dateable manuscripts that mirror the same formations and other appropriate data the hand may be placed within its historical context. The problem with this approach is obvious in that firmly dated texts are written on the whole in a faster and more cursive script. Embellishments such as serifs may give way to a more utilitarian style resulting in an appearance that is very different from the texts that are found in literary works where, as a rule, more care was taken in their production. A possible way ahead in using dated documentary hands is to detect the underlying

3 R. Criboire, *Writing, Teachers and Students in Graeco-Roman Egypt* (Atlanta: Scholars, 1996) has helped in our understanding of how school children were trained to write; however the questions in regard to the detailed training of scribes still remain. See also K. Haines-Eitzen, *Guardians of Letters: Literacy, Power, and the Transmitters of Early Christian Literature* (Oxford: Oxford University, 2000) 53–75, who devotes a chapter to the training of Christian scribes and who notes the multifunctional ability of scribes. Haines-Eitzen mentions the passage from Eusebius (*HE* 6.23) who recounts in part that Ambrose placed at the disposal of Origen, κόραις ἐπὶ τὸ καλλιγραφεῖν ἡσκηέναις. The quote is tantalising as it leaves us asking, 'what did Eusebius mean by καλλιγραφεῖν and why only girls?'

4 The term 'graphic stream' is used by G. Cavallo, 'Greek and Latin Writing in the Papyri', *The Oxford Handbook of Papyrology* (ed. R. S. Bagnall; Oxford/New York: Oxford University, 2009) 114. Cavallo uses the term to describe the various scripts that have some sort of characteristic uniformity in style over a period of time. A particular graphic stream is identified by certain elements that characterise a script. The so-called 'biblical majuscule' stream is identified by the contrast between thin horizontal strokes and fatter vertical strokes. The 'severe' graphic stream is characterised by a contrast in size between broad letters and narrow letters. The 'decorated round cursive' is a graphic stream characterised by rounded letters and vertical strokes finished with a serif or a roundel. The way that individual letters are formed within these graphic streams is secondary to the overall style of the script. So for example, whether an alpha is formed with an arched vertical stroke or is written in a single sequence with a loop is not as important in dating, as is the graphic stream in which the letter occurs.

formation of letters in a documentary hand and then compare the characteristics of those formations with that of the literary text. In dating by handwriting, individual letter shapes need to be studied to detect similarities or dissimilarities across time, but the graphic stream in which they are embedded remains the controlling factor.⁵ In using palaeographical comparisons for dating manuscripts we also need to take into consideration that a particular graphic stream may persist for some period of time, perhaps even for a hundred years.⁶ Along with dated documentary papyri, firmly dated documentary texts that are written in a 'bookhand' are the most obvious comparanda for dating literary manuscripts. Literary texts that can be roughly dated because of a documentary text written on the verso of the manuscript may also be of some use; however they are not numerous.⁷ In view of our limited knowledge of scribal training and the nature of the comparanda a narrow dating of hands should be avoided unless there is reliable evidence to warrant otherwise. With these methodological considerations in view, the following NT papyri will be reviewed.

3. P. Ryl. 457 (P⁵²)⁸

P.Ryl. 457 has been dated variously. C. H. Roberts (ed. pr.) dated P.Ryl. 457 to the first half of the second century. For dated documentary parallels Roberts used P.Fay. 110 (letter, AD 94), P.Lond. inv.2078 (81–96), P. Oslo. 22 (127) and assigned dated documents, Egerton Papyrus 2 and P.Berol. 6845. Turner had no evidence to invalidate Roberts' dating but added the caution that P.Amh. 78 (184) shows similarities with P.Ryl. 457 and dated it simply to the second century. Wilcken, citing manuscripts in the Apollonios archive (117–120), suggested early II. Comfort suggested very early second century because of its likeness to P.Oxy. 2533 (early II). Schmidt offered P. Beatty10 (early III) as a comparative manuscript for dating P.Ryl. 457 and dated it late second century close to 200. Brent Nongbri has rightly argued for a widening of the possible range of dates for P.Ryl. 457.⁹ He investigated Roberts' use of various manuscripts in his dating of P.Ryl. 457, observing that P.Berol. 6845 has some definite similarities with P.Ryl. 457 whilst noting that the formations of phi, alpha and epsilon are quite distinct.

5 See Pickering, 'The Dating of the Chester Beatty–Michigan Codex', 221.

6 See, for example, E. G. Turner, *Greek Manuscripts of the Ancient World* (ed. P. J. Parsons; London: University of London, Institute of Classical Studies, 2nd rev. and enl. ed. 1987) 29.

7 For example, in seeking to date manuscripts with a 'Biblical Uncial' script there are only three manuscripts that can be roughly dated; see the discussion below.

8 An image of P. Ryl. 457 may be found at the Rylands Papyri Collection website: enriqueta.man.ac.uk:8180/luna/servlet/ManchesterDev~93~3 (2010).

9 B. Nongbri, 'The Use and Abuse of P⁵²: Papyrological Pitfalls in Dating of the Fourth Gospel', *Harvard Theological Review* 98 (2005) 23–48. Nongbri, however, does not give what he considers to be a reasonable date range for P⁵².

He also rightly dismisses Egerton Papyrus 2 as of any use for dating purposes, as it also for its date relies on, for the most part, the same manuscripts. The same can be said of the use of P.Beatty 10 for dating P.Ryl. 457. Nongbri places quite a deal of emphasis on the two different ways the alpha is formed in P.Ryl. 457. He notes that in l.3 verso the alpha has an arched vertical stroke, whilst the other, l.4 verso, is written in a single sequence with a loop. He observes that in the case of P.Fay. 110 these same two ways of forming the alpha can be seen as well as 124–131 years later in P.Oxy. 3694 (218–225). Nongbri rightly rejects P.Lond. inv.2078 as being comparable to P.Ryl. 457 and also P.Oslo. 22 whose ‘overall appearance is not terribly close’ as well as BGU 22 and P.Flor. 1. He also notes that many of the features Roberts isolates in papyri from the late first to the mid-second centuries persist into the late second and third centuries. Nongbri offers some new comparanda; P.Mich. inv.5336 = SB 15782 (c. 152); P.Amh. 78, (184); P.Oxy. 3614 (c. 220?); P.Oxy. 3694 (most probably, 218–225) and P.Oxy. 2968 (190).

In what graphic stream are we to place P.Ryl. 457? Cavallo placed it in a graphic stream that he maintained arose in the mid-second century and developed into its ideal form, the Alexandrian Majuscule (Greek Uncial of Coptic Type), in the fifth to sixth centuries. P.Grenf. 2 is cited as an example of this script.¹⁰ However the graphic stream that P.Ryl. 457 represents is attested in the first century AD and onwards. It is a round block script that has cursive letter formations written with a fluid ductus, the two oblique middle strokes of the mu are combined to form a dish shape, omega and epsilon are generally formed with loops, epsilon has an extended middle hastas and the obliques of lambda, epsilon, mu and delta are often written with a curl at the top. Whether this graphic stream developed into the Alexandrian Majuscule is a moot point. Variations occur within this graphic stream due to the proficiency of the scribe, writing speed, individual stylistic preferences and document type. The majority of the following documents are documentary and many need to be viewed from the perspective of how the scribe might write a more formal manuscript such as a book. Dated examples for the P.Ryl. 457 stream are: P.Oxy. 3466 (81–96), P.Fay. 110 (94), P.Oxy. 3016 (148), P.Mich. inv.5336 (152), P.Oxy. 4060 (159–163), P.Amh. 78 (184), P.Oxy. 2968 (190), P.Oxy. 3614 (200), P.Mich. inv.2789 a + b (203–206), P.Oxy. 3694 (218–225), P.Oxy. 3183 (292).¹¹ The question is, where does P.Ryl. 457 fit in this continuum? As can be observed, the graphic stream in which P.Ryl. 457 is to be located appears to have great holding power in its letter formation (hence Turner’s II, Schmidt’s early III). Consequently it is

10 G. Cavallo, ‘Γράμματα Ἀλεξανδρινά’, *Jahrbuch der Österreichischen Byzantinistik* 24 (1975) 23–54.

11 Images of the Oxyrhynchus papyri can be found on the Oxyrhynchus Papyri website: www.papyrology.ox.ac.uk/POxy/ (2010). An image of P.Amh. 78 can be found in *The Amherst Papyri*, vol. 2 (London: Oxford University, 1901) plate XVII. For P.Mich. 5336, see Nongbri, ‘The Use and Abuse’, 41.

difficult to place P.Ryl. 457 in a very narrow time period. When the general style and individual letter features are kept in close connection and keeping in mind how a scribe writing a documentary text may write a literary text differently, it would seem, from the above dated manuscripts, that a date of II or III could be assigned to P.Ryl. 457. This may be unsatisfactory for those who would like to locate P.Ryl. 457 in a narrower time frame but the palaeographical evidence will not allow it.

4. P. Barc. inv. 1 + Magd. Coll. Gr.18 (+ Paris Suppl. Gr.1120 binding?) (P⁴/P⁶⁴/P⁶⁷)¹²

P⁶⁴ was dated III by Charles Huleatt who donated the manuscript to Magdalen College. Hunt dated it to early IV.¹³ Roberts identified P⁴/P⁶⁴/P⁶⁷ (from here on referred to as P⁶⁷⁺) as all belonging to the same codex and dated the codex to c. 200 suggesting that the lettering corresponds most closely to P. Oxy. 843 (Plato *Symposium*).¹⁴ Aland hesitated in affirming a complete identification of P⁴ with the same codex as P⁶⁴, P⁶⁷, because the colour of the papyrus of P⁶⁴ is much lighter than that of P⁴.¹⁵ However this need not prevent identification, as colour variations occur within the papyrus material. T. Skeat has argued that all the fragments have originated from a single quire multi-gospel codex.¹⁶ Roca-Puig noted the similarities between P⁶⁷ and P.Oxy. 661 (latter part of II) and P.Oxy. 224/P.Ryl. 547 (late II) and dated P⁶⁷ to the late second century. Carsten Thiede dated P⁶⁴ to the second half of the first century.¹⁷

P⁶⁷⁺ is written in a formal round block hand with minimal cursive influence and with some contrast between light and heavy strokes. Bilinearity is generally maintained except for phi, upsilon and rho. P⁶⁷⁺ belongs to a graphic stream that is commonly known as 'Biblical Uncial'. To narrowly date this type of hand is problematic as there are very few dateable examples by which we may judge

12 Images of P⁴/P⁶⁴/P⁶⁷ can be found at: http://chrles.multiply.com/photos/album/124/Bible_Papyrus_p4 (2010); http://chrles.multiply.com/photos/album/64/Bible_Papyrus_p64 (2010); http://chrles.multiply.com/photos/album/61/Bible_Papyrus_p67 (2010).

13 C. H. Roberts, 'An Early Papyrus of the First Gospel', *HTR* 46 (1953) 233.

14 C. H. Roberts and T. C. Skeat, *The Birth of the Codex* (London: Oxford University, 1987) 40-1.

15 K. Aland, 'Neu Testamentliche Papyri II', *NTS* 12 (1966) 193-5.

16 T. C. Skeat, 'The Oldest Manuscript of the Four Gospels?', *NTS* 43 (1997) 1-34. Scott Charlesworth, whilst agreeing that all the fragments are from the same scribe, argues against a single quire codex and for separate codices because of the fibre directions, S. D. Charlesworth, 'T. C. Skeat, P⁶⁴⁺ P⁶⁷ and P⁴, and the Problem of Fibre Orientation in Codicological Reconstruction', *NTS* 53 (2007) 582-604.

17 C. Thiede, 'Papyrus Magdalen Greek 17 (Gregory-Aland P⁶⁴): A Reappraisal', *Zeitschrift für Papyrologie und Epigraphik* 105 (1995) 13-20. For a concise and helpful critique of Thiede's dating, see R. Bagnall, *Early Christian Books in Egypt* (Princeton: Princeton University, 2009) 23-36.

in what period the manuscript could fall.¹⁸ The dateable Biblical Uncials are as follows.¹⁹

1. **P.Oxy. 20 = P.Lond.Lit. 7**, Homer *Iliad* II. The recto contains Homer's *Iliad* written in a large calligraphic uncial. On the verso are some accounts in a cursive hand of the late second/early third century. According to Roberts this could possibly date the hand on the recto to the mid-second century.²⁰
2. **P. Ryl. 16**. Fragment of an unknown Comedy. Latter part of II? This literary text has on the verso a letter (P.Ryl. 236) dated AD 255/256. Hunt (ed. pr.) says of 16 that it therefore could not be later than 215.²¹
3. **P.Oxy. 661**, Callimachus *Iambi*. On the verso is a cursive hand which according to Grenfell and Hunt is not later than the third century and which quite likely falls within the second. The hand of the verso could therefore be dated to the second century. According to Roberts this is one of the earliest datable examples of the 'Biblical Uncial' style.²²

Cavallo based the dating of the Biblical Uncial hands on the assumption that there is a diachronic development in the hand so that the characteristics associated with it become more marked in time. He argues from this evolutionary thesis that the Biblical Uncial style took its classic shape in the middle to late second century AD.²³ Peter Parsons rightly notes that the objection to this assumption is that the objectively datable examples are too few to prove that the more developed examples of the script are always later than the less developed ones. It may just be that the more and the less developed are the work of the more and the less artistic and competent scribes working in the same period.²⁴ Parsons is correct in this observation and this of course makes a narrow dating of P⁶⁷⁺ problematic. From Table 1 it can be observed that there are enough similarities to suggest that P⁶⁷⁺ could be contemporary with P.Oxy. 661, which has been dated to late II; on the other hand, it could be closer to the date of Sinaiticus. Comfort argues that some sort of a *terminus ad quem* can be proposed, as P⁴ was used as stuffing for the binding of a codex of Philo, which according to Roberts, was written in the late third century and which he speculates was hidden when

18 Because of this paucity, Parsons warns against overconfidence in constructing an evolutionary development for the Biblical Uncial script, Parsons, 'Guglielmo', 380.

19 For images of the following manuscripts, see C. H. Roberts, *Greek Literary Hands, 350 BC-AD 400* (Oxford: Clarendon, 1955) 16, 22 and 12 respectively.

20 See Roberts, *Greek Literary Hands*, 12.




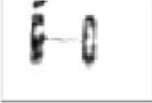
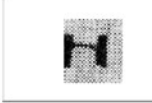


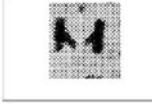
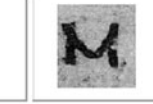





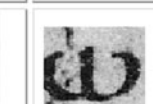









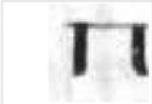




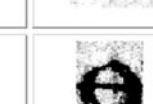
21 Roberts, *Greek Literary Hands*, 22.

22 Roberts, *Greek Literary Hands*, 16.

23 Cavallo, 'Γρόμμιατα', 13-44.

24 For a full critique by Parsons of Cavallo's dating methodology of the Biblical Uncial style, see Parsons, 'Guglielmo', 375-80.

Table 1. Comparison of letter formation between Sinaiticus, P.Oxy. 661 and P⁶⁷⁺

Sinaiticus	P ⁶⁷ /P ⁶⁴ /P ⁴	P.Oxy. 661
		
		
		
		
		
		
		
		
		
		

Coptos was sacked by Diocletian in either 292 or 303. However the *terminus ad quem* is very tenuous as it relies on the assumption of the reliability of the assigned date given to the Philo codex by Roberts and that it was hidden to avoid confiscation during the persecutions of Diocletian.²⁵ Until further evidence is forthcoming perhaps a date from mid-II to mid-IV should be assigned to the codex represented by P⁶⁷⁺.

5. P. Beatty 2 (P⁴⁶)²⁶

Assigned dates for P⁴⁶ range from between the late first and the third centuries. The first editor, Kenyon, assigned the hand to the early third century; H. A. Sanders preferred a date later in the third century. However, U. Wilken thought that the hand could be of the second century or about AD 200. E. G. Turner supported a dating in the third century but in his chronological inventory of early codices listed P. Beatty 2 as II/III. Recently Young K. Kim re-dated the papyrus to the end of the first century based on a number of criteria:²⁷

1. Literary papyri similar to the style of P⁴⁶ have been assigned dates between the first century BC and the early second century AD.
2. Comparable documentary papyri are dated early.
3. The script of P⁴⁶ with its ligatures and keeping to an upper notional line is very rare after the first century.
4. The finials at the feet of the letters are seen in manuscripts dated from the last quarter of the third century BC to the third quarter of the first century AD.
5. The eg form (before compounds with b, d and l) is very early compared to the ek form.
6. The hand of one of the correctors is to be dated early (second century BC to early second AD).

However, most have found Kim's case not compelling. Bruce Griffin, in a detailed response to Kim's dating, has offered a dating of c. 175–225.²⁸ Griffin argues that:

25 P. Comfort, *The Text of the Earliest New Testament Greek Manuscripts* (Wheaton: Tyndale House, 2001) 52–3. Comfort also argues for an early date of P⁶⁷⁺ based on the small number of *nomina sacra*. The problem of dating P⁶⁷⁺ on this basis is that it can lead to circularity of argument whereas the treatment of words as *nomina sacra* may be far more complex. There is also the possibility that the scribe of P⁶⁷⁺ strictly adhered to the format, in the *Vorlage*, of words treated as *nomina sacra*.

26 Images of P⁴⁶ can be accessed through: <http://evangelicaltextualcriticism.blogspot.com/2006/01/images-of-P46-michigan-portions.html> (2010).

27 Y. K. Kim, 'Palaeographical Dating of P46 to the Latter First Century', *Biblica* 69 (1988) 248–57.

28 B. Griffin, 'The Paleographical Dating of P-46', www.biblical-data.org/P-46%20Oct%201997.pdf (2010).

1. The use of ligatures does not so much indicate a time period as it does a lapse in professionalism.
2. Handwriting became strongly bilinear in the first century and began to break down in the second century when by the third century it was common to find hands that kept to the upper notional line but not the lower.
3. The hand of the corrector which appears early because of the 'separated kappa' (vertical stroke separated from rest of the letter) consists of only two letters and therefore a consistency of formation cannot be established.
4. The decorated style (*Zierstil*, Schubart) of P⁴⁶, which Kim claims is evidence of an early dating for P⁴⁶, continued well into the third century.

James Royle, commenting on the eg form, which Kim maintains is very early compared to the ek form before compounds with b, d and l, notes that Kim is selective in presenting evidence for the date of the shift and that the available evidence demonstrates that the form is early but also consistent with a dating of P⁴⁶ to c. 200.²⁹ S. Pickering rightly criticizes Kim's methodology in that he allows individual letter forms to take precedence over style (graphic stream).

It is in fact fairly easy to find similar letter shapes in hands many centuries apart which have no stylistic connections apart from a common heritage of the hand-written letter shapes of the Greek alphabet.³⁰

Phillip Comfort, whilst criticizing Kim's approach, dates the papyrus to the middle of the second century on the basis of its similarity to P.Oxy. 1622, P.Oxy. 3721, P.Ryl. 550, P. Berol. 9810 and the second hand of P.Oxy. 841.³¹

The text of P⁴⁶ is written with an upright block script that has been influenced by cursive formations. Some of the letters are angular in formation (especially phi, beta, epsilon, delta). Serifs are formed at the top and base of most verticals. Many of the serifs are formed on the vertical strokes with a short horizontal line to the left. The middle hastas of the epsilon is extended and a detached form occurs infrequently. The two oblique middle strokes of the mu are combined to form a dish shape, omega is generally formed with loops and the obliques of lamda, epsilon, mu and delta are often written with a curl at the top. There is some emphasis on keeping to an upper notional line, but not always, by writing letters such as the omega and omicron in a smaller script and placing them closer to the upper line and by 'hanging' the epsilon and sometimes the beta down from the upper line. P⁴⁶ has been placed by Cavallo in a graphic stream which he traced from around AD 150 to around AD 800 and which he proposes developed, when fully formed, into

29 J. R. Royle, *Scribal Habits in Early Greek New Testament Papyri* (Leiden: Brill, 2008) 249–50.

30 Pickering, 'The Dating of the Chester Beatty–Michigan Codex', 221.

31 Comfort, *The Text of the Earliest New Testament Greek*, 206.

the 'Alexandrian majuscule'.³² However, the graphic stream to which P⁴⁶ most probably belongs has developed from a script that can be traced back to the third century BC (P. Hibeh 1, P.Ryl. 490) and is characterized by serifs and more angular formations for letters such as delta, phi and upsilon rather than the round ductus for those letters that represent Cavallo's proto 'Alexandrian majuscule'. This graphic stream continued into the third century (P.Oxy. 3030, AD 207) and into the fourth/fifth century (P.Ryl. 58). P.Oxy. 1622 also belongs to the same graphic stream and shares many similar features with P⁴⁶. P.Oxy. 1622 can be dated to the first half of the second century with reasonable confidence because of the documentary text on the verso.³³ P.Oxy. 1622 and P.Oxy. 3030 differ from P⁴⁶ in that they lack the apparent emphasis on the upper notional line, whereas the scribe of P⁴⁶ has a tendency sometimes seemingly to favour the upper line. The tendency to favour the upper line, especially with regard to the omega and omicron, can be observed in the following first-, second- and third-century documentary scripts, P.Oxy. 2720 (41-54), 3250 (c. 63), 3272 (61-62), 3489 (70), 3910 (99/100), 4867 (122/3), 4871 (122/3), 4058 (154), 3614 (200), 3183 (292). This tendency in P⁴⁶ is more apparent than actual and is not consistent. In f.39.v. l.1, for example, an apparent favouring of the upper line may be observed because of the smaller omicrons; however, in l.2 the omicrons are written in a similar size compared to the other letters and the beta is begun above the upper notional line; a more or less bilinear result is achieved. Another stylistic feature of P⁴⁶ influenced by documentary practice is the occasional angular tails on some of the descendars. At what point along the continuum of the more angular graphic stream does P⁴⁶ best fit? Griffin rightly states, 'it is very difficult to find a very close comparison for P⁴⁶'.³⁴ In assigning any date to P⁴⁶ four characteristics of the hand need to be kept closely in mind: the angularity of the letters mentioned above, some emphasis on the upper notional line, the occasional tail endings on descendars as a decorative style and the influence of cursive formations on such letters as alpha, mu and epsilon. In comparing documentary hands with literary hands it must be kept in mind that how a scribe wrote a document, such as a contract or bill of sale, would be quite different from how the same scribe might write a book. However, it may also be expected that some characteristics of letter formation would be shared. If this is the case, it may be observed from Table 2 below that the hand characteristics that can be observed in P⁴⁶ seem to group around AD 200-223. Of course this observation must by its nature be tentative as it includes only papyri from Oxyrhynchus, and there are only two papyri that evidence all the attributes of P⁴⁶. Given our limited knowledge of

32 Cavallo, 'Γράμμαστα', 23-54.

33 An image of P.Oxy. 1622 may be found at <http://www.igl.ku.dk/~bulow/Oxy1622.jpg> (2010).

34 Griffin, 'The Paleographical Dating of P-46'.

Table 2. Style features from dated documentary papyri from Oxyrhynchus (similarities in bold)

Sigla	AD Date	Angularity	Some emphasis on upper line	Angular Tail endings
2874	108	no	yes	no
3197	111	no	yes	some
4867	122/3	Some (upsilon)	some	some
4355	128	no	yes	yes
3690	139	no	yes	mixture of serifs and tails
2868	147	some	yes	mixture of serifs and tails
3472	149	no	yes	no
2722	154	yes	yes	no
2964	154	yes	no	no
2965	154	yes	yes	no
4058	154	no	no	yes
3030	207 ?	yes	no	yes
3364	209	yes	yes	mixture of serifs and tails
4775	223	yes	yes	yes
3593	238-44	no	perhaps	yes
3178	248	no	yes	no
2854	248	no	some	yes
2567	253	no	yes	yes
3912	266	no	some	No

scribal practices and that there are some corresponding style similarities that appear earlier, perhaps a tentative dating range of AD 150-250 should be assigned to P⁴⁶.

If Roger Bagnall is correct in his assumption, that it would be quite unusual to find any Christian texts in the Egyptian chora before the Severan period, are we able to eliminate any possibility of the above NT papyri being dated to the

second century?³⁵ The answer must be no, for what Bagnall has not envisaged is the possibility that Christian texts may well have been produced in the second century in such places as Alexandria or even further afield where there were quite active Christian churches and were then, in the third-century, brought to Christians living in the chora. So, for instance, it is not beyond the realms of possibility that a church in Alexandria gave an old copy of the collected letters of Paul, produced in the mid-second century, to a newly established third century church in Oxyrhynchus. Provenance does not necessarily equate with origin of production. A far more fundamental problem with Bagnall's assumption, as Larry Hurtado has rightly observed, is that Bagnall's conclusion relies on too much guesswork to form a compelling argument; further, it is reasonable to assume from the evidence that Christians may have produced copies of their texts disproportionate to their number in the general population.³⁶ Therefore the date range for the above papyri must include the possibility of a production date in the second century if the palaeographical evidence warrants it.

6. Conclusion

The above examples demonstrate that a methodological approach, which includes the identification of the graphic stream in which a hand is to be located, is fundamental for the dating of undated papyri. It is admitted that the extension of the date range for the above NT papyri, using this approach, is perhaps unsatisfying for NT scholars and Early Church historians who would wish for a more specific date. However, the nature of the evidence which we have to hand, as has been demonstrated in this paper, is not able to deliver the close dating that some others have attributed to them and which we would desire.

35 For Bagnall's argument concerning the probability of finding almost no surviving Christian manuscripts in the chora of Egypt dated to the late first or second century, see R. S. Bagnall, *Early Christian Books in Egypt* (Princeton: Princeton University, 2009) 2–24. Bagnall argues from probability that we should expect that the percentage of Christian papyri among extant second-century papyri correlates with the likely percentage of Christians in the population of Egypt at that time. Bagnall, in the absence of hard data, adopts Rodney Stark's estimation of the number of Christians in the early centuries. Bagnall on this basis proposes that Christians comprised as much as 1 percent of the Egyptian population only by 'the late 220s'. From this he reasons that Christian manuscripts from the second century should comprise no more than one percent of the total extant, or about one or two manuscripts.

36 For Hurtado's complete argument, see L. Hurtado, Review of Roger S. Bagnall, *Early Christian Books in Egypt*, *Review of Biblical Literature* (2010), http://rblnewsletter.blogspot.com/2010_01_01archive.html (2010).