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Fragments and Fakes

The *Arbor consanguinitatis* of the Fondation Martin Bodmer and a Contemporary Forgery

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Abstract: A tree of consanguinity (*arbor consanguinitatis*) contained in a manuscript published on e-codices (Cologny, Fondation Martin Bodmer, Cod. Bodmer 28), served as the model for a new class of forgery. An analysis of the Bodmer leaf in the context of other *arbores consanguinitatis* shows how the leaf relates to tradition; an examination of the leaf's history and provenance reveals that the leaf was mutilated, probably in the mid-twentieth century. The forgery is proven to be such through a paleographical and content analysis of the script, and through an examination of the leaf's method of composition. A second forgery is examined, a fragment of Jerome's Epistle 53, fabricated from the first folio of another e-codices manuscript, Aarau, Aargauer Kantonsbibliothek MsWettF 11. The forgeries and their circulation provides the opportunity for an assessment of the changing role of manuscript fragments and fakes in the twenty-first century.

Keywords: arbor consanguinitatis, forgery, Bodmer, e-codices, Digital Humanities, manuscript culture

   The Fondation Martin Bodmer owns a thirteenth-century Latin Bible (Cod. Bodmer 28)[1], likely produced in northern France, which contains 80 artfully historiated initials. At the front, the book presents an isolated first leaf written in another hand, which was added at an as-yet undetermined date and which, on the recto, contains a depiction of an *Arbor consanguinitatis* ([F-w3l8](#)). This leaf, presumably also produced in Northern France in the late thirteenth century, serves as the point of departure for our investigation, which shows how the rise of digital libraries has enabled a new class of forged manuscript leaves and fragments.

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1   Latin Bible, Cologny, Fondation Martin Bodmer, Cod. Bodmer 28 (https://www.e-codices.unifr.ch/en/list/one/fmb/cb-0028).

The Bodmer leaf and *Arbores consanguinitatis*

By the time of the composition of the *Decretum Gratiani* in the twelfth century, early-medieval papal decrees barring marriage within seven degrees of consanguinity were interpreted such that each degree represents a generation, and, consequently, intermarriage between sixth-cousins (without papal dispensation) was forbidden. In 1215, the Fourth Lateran Council reduced to four the number of prohibited degrees, and the new regulations became part of the *Liber extra* compiled by Raymond of Peñafort in 1234 and promulgated by Pope Gregory IX.

A visual depiction of a family tree was developed to illustrate the impediments to marriage. The subject-person ("ego") was situated in the middle, above him were depicted his ancestors or ascendants (*pater, avus, proavus*, and *abavus*), below him, his progeny or descendants (*filius, nepos, pronepos*, and *abnepos*), and, to the sides, collateral relatives to the fourth degree. In this way, legitimate marriages could be easily distinguished from those within the prohibited degrees of consanguinity. The subject was not allowed to marry a relative who appeared in one of the degrees on the table.

More than 255 depictions survive, dating from the late thirteenth century to the end of the fourteenth century,[2] and over 70 of these belong to the French tradition, including our leaf, a member of the sub-group known as the "Scepter Type".[3] On the whole, the depictions from the French tradition have a large internal unity, and Hermann Schadt describes the mass production of such depictions in workshops of the time, "usually with only slight variation in the motifs".[4]

While images of only a small number of these depictions are available in print,[5] today, thanks to the ongoing revolution in information technology, many more are now accessible in some form on the internet. We have thus compiled (in Appendix A) a catalog of those images from Schadt's Scepter Type *arbores* that were available on the internet at the time of the writing of this article (July 2018), as well as three depictions not in Schadt's catalogue.

The Bodmer *Arbor* in comparison

There are numerous and varied similarities between the individual representations, and the Bodmer *arbor* in particular relates to many of the other *arbores*

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2   H. Schadt, *Die Darstellungen der Arbores Consanguinitatis und der Arbores Affinitatis, Bildschemata in juristischen Handschriften*, Tübingen 1982, 234–306.

3   Schadt, *Die Darstellungen*, 235–246.

4   Schadt, *Die Darstellungen*, 124.

5   For researchers, obtaining images used to be a major undertaking, and high printing costs further limited the selection. For university publications, the quality of the images was often quite poor. Schadt, *Die Darstellungen*, XXX, summarizes: "of the following 63 pairs [of *arbores consanguinitatis et affinitatis*] and 8 single leaves [of *arbores*], only 9 pairs and 12 single examples have been published."

Figure 1: *Arbor consanguinitatis*, Cologny, Fondation Martin Bodmer, f. 1r (e-codices). Line numbers have been added.

available online. Nearly all the pictures (except #7, #12, #14; numbers refer to the Appendix) depict a king, who in most of the cases is crowned with a fleur-de-lys crown (particularly similar crowns in #4, #9, #11, #16, #17, #18, #19, #20, #22, #24, #30). In the Bodmer *arbor* as in a few other pictures (#2, #8, #9, #13, #14, #22, #26, #30, #32), the king is gazing rigidly straight ahead, and the eyes are close together; we find the whole face similar to #2, #3, #17, #20, #23, #32. The posture of the arms varies considerably; those of the Bodmer *arbor* rest on and embrace the table, and the outstretched fingers are just holding, but not grasping, the scepter (similar to #3, #11, #18, #19, #23, #34, #35, especially clear in the examples without a scepter, that is, #4, #6, #7, #20). The ermine coat is not recognizable as such in the Bodmer *arbor* (as opposed to #2, #3, #6, #8, #16, #17, #22, #30, #34), and is held together with a fine chain (as in #5, #8, #11, #13, #17, #18, #24, #25, #30; without a broach, as in #19, #20, #21, #22, #23). Even the position and shape of the feet, as well as the pattern of the shoes find similarities in other representations (#3, #4, #6, #8, #9, #10, #13, #17, #19, #21, #23, #24, #30, #32, #33). To attest to his power, our king stands on two animals, in his case, two dogs (as in #12, #24), not on lions (#2, #8, #16, #18, #32, #33), dragons, other mythical beasts (#4, #9, #10, #11, #17, #20, #30), pheasants (#13), or hybrid creatures (#3, 37). Both scepters bloom into a vine motif (similar to #11, #13, #15, #16, #17, #18, #24, #30, #31, #32, #33). The background is pale red speckled with a repeating motif of three white points arranged in a triangle, similar to the simple decoration of ceramics (similar to #5, #16, #23, #24, #30, #34). Gold is used in the crown, the collar, the hem of the robe, the crown in the "ego" medallion, in the vines, and the pedestals on which the dogs are sitting. In spite of all the similarities, there is such a variety of applied motives that the Bodmer *arbor* cannot be assigned to any sub-group.

The closest *arbor* is certainly the *arbor* in Frankfurt, Stadtbibliothek Praed. 90 (#17). The face and hair of the King is similar, and the cloak and the shoes have the same shape. The Frankfurt *arbor*'s background is mostly blue, while the Bodmer's one is vermilion, but in both cases they have been decorated with the same three white dots. Even more noticeable, however, the dog that appears as decoration in the Frankfurt scepter-tree bears a striking resemblance to the two dogs in the Bodmer leaf. These numerous similarities are certainly no accident. The two *arbores* could come from the same workshop; at the very least, the two depictions must have been produced at roughly the same time and in roughly the same place. Nevertheless, there are numerous differences as well. In the Frankfurt leaf, the King is standing on a monster with four hind legs (similar to #4, #10), his ermine cloak is clearly visible, he is holding his hands in a different way, the *arbor* fills the square frame, and the face in the *ego* is looking to the right. Above all, the predominantly blue background is more richly decorated, and in the scepter-tree, in addition to a dog, two birds and a hare appear. Overall, the Frankfurt tree is more artful and more natural. While the king is tall, he is

not unnaturally stretched lengthwise, as with the Bodmer *arbor* (or #2, #9, #15, #32), and the face and nose are indicated in detail, while in the Bodmer leaf a half-circle hints at the nose. Such a comparison shows how even, in very similar drawings, motifs vary considerably.

The mutilated accompanying text, *Quia tractare intendimus*, in the Bodmer *Arbor*

The trees from the French area are usually found in the context of legal manuscripts, for example, the *Lectura super arboris consanguinitatis* of Johannes Andreae (#1, #15), Henricus de Segusio (Hostiensis) (#2, #3, #14, #22, #25, #31, #33, #34), or Gaufredus de Trani (#7, #17, #18), but most frequently with the short treatise of Raymond (of Peñafort?) that begins *Quia tractare intendimus* (#4, #5, #6, #9, #11, #12, #19, #20, #21, #24, #26, #27, #28, #29, #32, #35, #36, 37).

The Bodmer *arbor* was probably created as a single leaf; on the verso, the text of *Quia tractare* ends after 43 lines. A comparison with Worby's 2010 edition reveals that the ending of the text corresponds to the end of the first half, which concerns the *arbor consanguinitatis*; the second, and missing, part concerns the *arbor affinitatis*.[6] Since, as in other manuscript witnesses, the text here ends with "Raymundus", thus naming the author, it can be assumed that the writer did not intend to continue with the second half, but rather considered his work finished.

In addition to several textual variants, the Bodmer text has three extensive gaps:

1. *contrahere cum aliquo… ad sedem quod enim* (150 words; Worby, §11–13, pp. 150–51).
2. *sobrinus tertio… Hic est re(collende)* (153 words; Worby, §30–33, p. 154).
3. *Item cum fit computatio… trunco in tercio* (37 words; Worby, §46, p. 156).

The third case appears to be a common scribal error. It involves an omission by homoioteleuton, where the scribe skipped an entire sentence and continued with the next one, which also began with "*Item cum*".

The two other gaps, however, arose long after the scribe had copied the text. On the picture (Figure 1, above, and Figures 2 and 3, below) – and even clearer on the original – a break in the parchment is visible between the 78th and 79th lines on the page.

An investigation shows that the leaf was carefully cut in half between these two lines. Then the first eight lines of the lower part were cut off, and the rest of the lower part glued back to the upper part. The section of the lower part glued underneath the upper part is two lines long (Figure 4), but with image enhancement, the lines can be made visible again (Figure 5). The question naturally arises: who shortened this leaf and for what reason?

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6   S. Worby, *Law and Kinship in Thirteenth-Century England*, Rochester 2010, edition on 148–162; the section covered by the Bodmer leaf is §1–49, pp. 148–157, and the missing section is §50–74, pp. 157–162.

A leaf in the wrong place

As noted above, the *arbor* was a single leaf, and probably was conceived as a single leaf. Since this leaf, originally ca. 400 x 250 mm, was simply too large to fit in the slightly smaller Bible manuscript (357 x 250 mm), the leaf had to be shortened by some 35 mm.

The addition of the leaf in a volume where it certainly never belonged occurred most probably in modern times, that is, at a time when there was little interest in the text, but considerable value in a full-page miniature. This clearly points to the nineteenth or twentieth century,[7] with the rise of bibliophiles interested in book decoration. What is now known as the Bodmer *arbor* was inserted into a Bible manuscript, and for aesthetic reasons, the leaf was mutilated.

We know that the volume was bound in London by "Rivière and Son" between 1880 and 1920.[8] We also know that Martin Bodmer purchased the manuscript in July 1956 from the Parisian book dealer Lardanchet.[9] Bodmer's typewritten catalogue entry mentions "at the beginning a leaf from an older manuscript with a large central miniature (genealogical representation)."[10] The entries in Bodmer's catalogue were usually made shortly after the manuscript was purchased.[11] The entry in Lardanchet's sales catalogue, however, reveals that, at the moment of printing (May 1956), this leaf was not yet part of the codex. It is highly unlikely that the seller would simply forget to mention an attractive leaf bound at the very beginning of the codex; it is impossible, moreover, that, if the *arbor* were already bound with the codex, whether by Rivière or someone else, that the numerous sales catalogues that appear to mention this codex never discuss the tree.

The Schoenberg Database of Manuscripts includes manuscripts offered for sale in the nineteenth and twentieth centuries. Since we know the dimensions (35.6 x 25.4 cm), the number of leaves (415), columns (2) and lines (52), the manuscript was easy to identify, and it apparently changed hands several times

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7   One can see how a pre-modern binder inserted an excessively long leaf into a smaller volume in *arbor* 9 (Città del Vaticano, BAV, Reg. lat. 980, f. 4v). The bottom part was simply folded in.

8   Robert Rivière (1808–1882) was a London bookbinder with French roots. See the description by E. Pellegrin, *Manuscrits latins de la Bodmeriana*, Cologny-Genève 1982, 51–61 (https://www.e-codices.unifr.ch/de/description/fmb/cb-0028/). The usage of the embossed "Bound by Rivière & Son" dates the binding to the period 1880-1939, see: M. Riviere, "The Huguenot Family of Riviere in England", *Proceedings of the Royal Huguenot Society in London* 21(1970), 95–156. When the book appears for sale in 1920, the Rivière binding is explicitly mentioned in the auction catalogue *Catalogue of very important illuminated & other manuscripts, the property of the Lort Mostyn, Mostyn Hall, Mostyn, Cheshire... on Tuesday, the 13th of July, 1920*, London: Sotheby, Wilkinson & Hodge 1920, Lot 8.

9   *Catalogue de beaux livres anciens et modernes*, no. 50, Paris: Paul Lardanchet, 1956, p. 93, no. 3784, color plate of f. 4v.

10   Cologny, Fondation Martin Bodmer, Catalogue of the Bodmer Collection, "Zu Beginn ein Blatt aus einem älteren Manuskript mit grosser zentraler Miniatur (genealogische Darstellung)."

11   Information kindly provided by Nicolas Ducimetière of the Fondation Martin Bodmer.
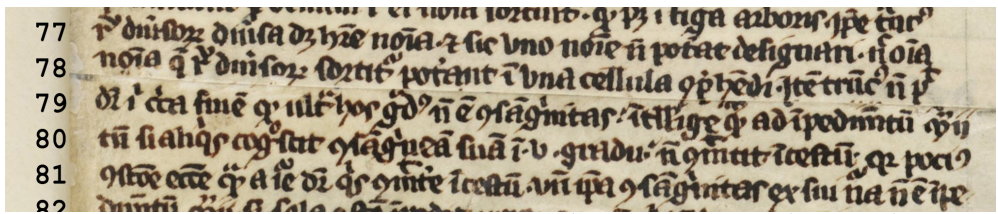
Figure 2: Cod. Bodmer 28, f. 1ra, between lines 78 (*nomina que respectu*) **and 79** (*dicitur ibi circa*) **a break is visible.**

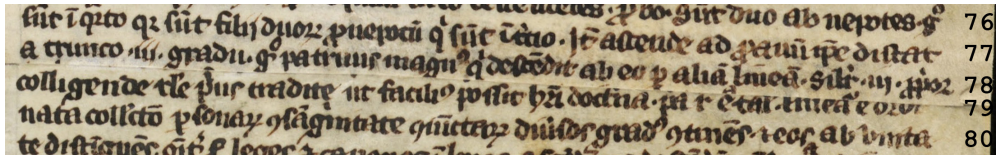**Figure 3: Cod. Bodmer 28, f. 1rb, the break is visible at the same place on the right column; at the right edge, line 78 slightly covers line 79.**

Figure 4: Bodmer 28, f. 1va. On the verso the glue work is more clearly visible. The lower part was pasted to the back of the upper part.
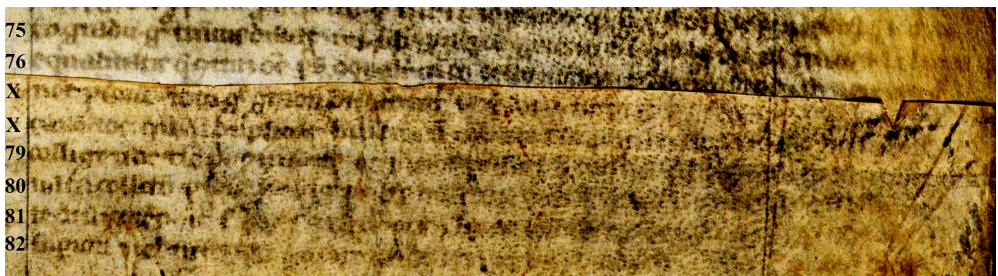
Figure 5: The image of Figure 4, enhanced and mirrored, making the covered text partially visible. The first covered line begins: "*<ma>nent persone toto ergo gradu*" **and the second** "*canonicos quandoque? non? duplicant nisi...*" **Line 79 begins** "*<re>colligende...*"

over the last two centuries.[12] Checking these data against the original catalogues available to us, the first unequivocal mention of this codex is a 1920 catalogue entry, which, as noted above, was used to establish the terminus *ante quem* of the Rivière binding.[13] Interestingly, the extent in 1920 is given as 415 leaves, which

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12   Schoenberg Database of Manuscripts, SDBM_MS_3031 (https://sdbm.library.upenn.edu/manuscripts/3031).

13   See n. 8, above. The earlier records for the manuscript in the Schoenberg Database, covering 1826-1857, are uncertain. In February 1826 it seems to have belonged to Payne & Foss, where apparently it remained in stock, being offered several times for sale (May 1827, February 1830,

suggests that the *arbor* had not yet been added as the 416th leaf. Ten years later, in 1931, Bernard Quaritch sold this *Biblia Sacra Latina*, which in the description refers to 70 ornamental initials, mostly historiated. But he was unable to immediately sell it (see the sales catalogues of 1935, 1941, and 1945).[14] In 1954, finally, Lardanchet offered it, and again – as we have seen – in 1956, when the codex was finally incorporated into the Bodmer collection.

It thus seems that the Bodmer *arbor* must be linked directly to the purchase of the codex by Martin Bodmer. What the particular circumstances that led to this remain unclear. In any case, given the leaf's mutilation to fit in the codex, commercial reasons probably played a greater role than conservational ones.

The Anonymous *Arbor consanguinitatis*

In March 2014, the e-codices team received an enquiry from a private collector regarding the Bodmer *arbor*. The collector had recently purchased from the same seller two fragments of approximately the same size, one of which was an *arbor consanguinitatis* (AAC), the other the first page of Jerome's Epistle 53, *Ad Paulinum presbyterum* (AAP). The collector noticed several similarities between his *arbor* and that of Bodmer, as well as the script accompanying them, and wanted to know if they could have been produced by the same workshop and possibly scribe. After a cursory inspection, one of the authors of the present article replied

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1835, 1837, 1845, 1848). Yet the last entry (*A Catalogue of Books in Various Languages on sale by Payne and Foss*, London: Payne and Foss 1848) describes the manuscript: "676 – Biblia, Vetus et Novum Testamentum, cum Prologis et Argumentis Sancti Hieronymi. Saeculi XIV. Fine MS, upon vellum, containing 830 pages in double columns. On the first page is a Miniature Portrait of St. Jerome, and in the body of the work are many coloured Initials. At the end of the Book of Job is the date of MCCC., in the original binding, with clasps, 8l. 8s. fol." Although the number of pages and the content match, our manuscript is not dated. The 1857 catalogue (see SDBM_65366, https://sdbm.library.upenn.edu/entries/65366) unfortunately could not be found.

14 Our manuscript is mentioned in the 1945 catalogue (*Rare and imported illuminated manuscripts incunabula... works on bibliography and palaeography*, no. 629, London: Bernard Quaritch 1945): "Biblia sacra latina. Versio Vulgata, cum prologis S. Hieronymi et interpretationibus nominum Hebraicorum. Folio (14 x 10 ins.), illuminated manuscript of Anglo-French execution of fine uterine vellum, ff. 415, written in clear Gothic characters, double columns, 52 lines to a column; rubricated throughout, with page titles and chapter numbers in red and blue; with an exceptionally fine strap initial at the beginning of Genesis, containing 8 small miniatures representing the Creation and the Crucifixion, in ovals, on diapered grounds of red and blue, also 70 ornamental initials mostly historiated and containing miniatures executed in the best style of the period, that at the beginning of Matthew containing a "Jesse tree"; numerous capitals in red and blue with pen-work marginal decoration also in red and blue extending the full lenght of the page; bound in brown morocco, blind-tooled, gilt edges, by Rivière, in a cloth clip-on case. About 1280 - £ 1,000 - $4,000.00 (A very fine example of calligraphy and decoration, complete and in splendid condition throughout)."

that the two leaves are so closely related that in modern terms one of them we would call a fake.
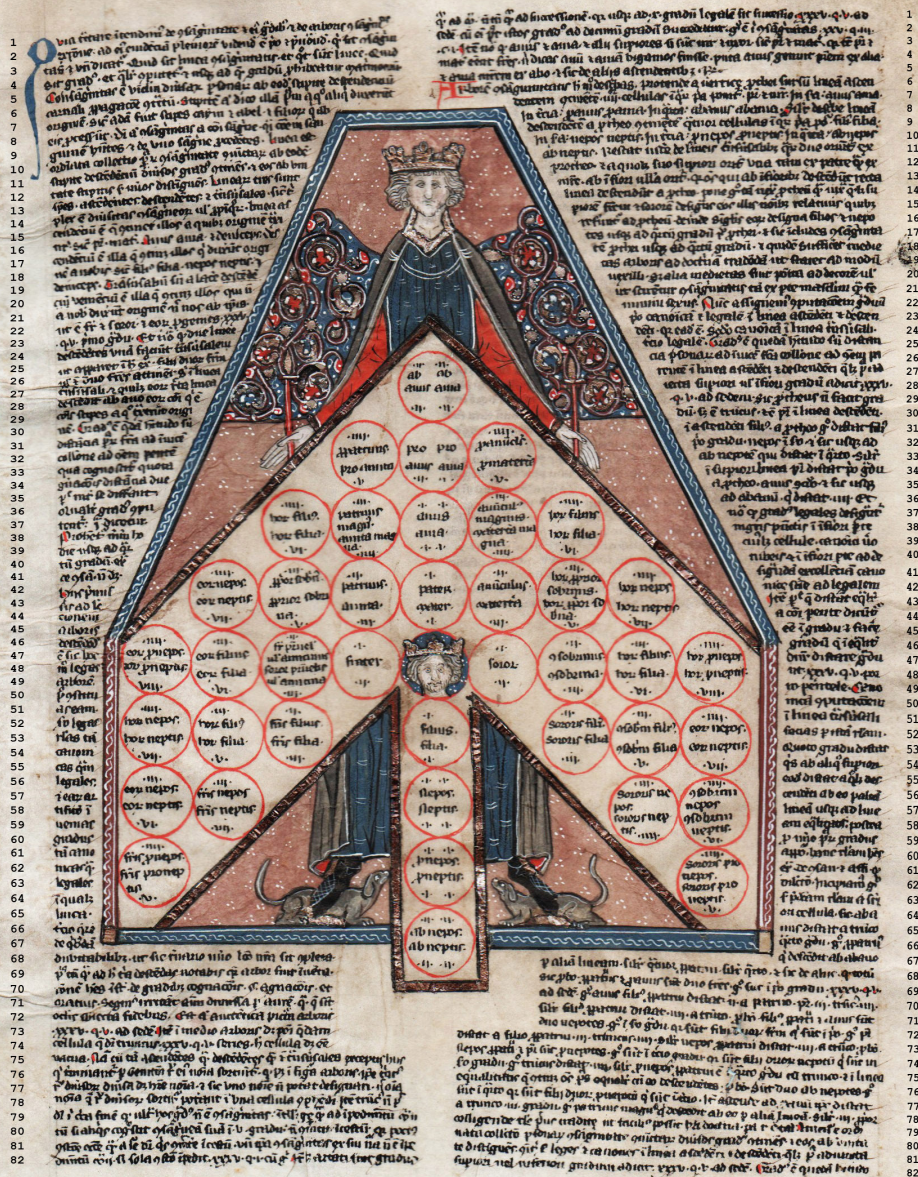

Figure 6: AAC recto, with line numbers added

The AAC surfaced again in September 2016, for sale in Switzerland in a catalogue of a highly-reputed dealer of medieval manuscripts and early printed books. The leaf was unmistakably the same, although the parchment appeared to have undergone restoration. In May 2018, upon noticing that the AAC was for sale, we informed the dealer immediately, and the leaf was removed from the website. While the web page contained no information on provenance, we learned from conversations with the staff that it had been obtained from an auction house. Unfortunately, the dealer could not meet us to discuss the matter further.

The manner of fabrication, continued presence, and circulation of this twenty-first-century simulation of a medieval manuscript raises a number of questions concerning the changing role and value of manuscript fragments in society, the impact of digital libraries, the competing and shared interests in the community of manuscript scholars, collectors, and dealers, and those who would exploit them.

Material Description of the AAC (from digital photographs)
Parchment, ca. 195 x 145 mm.
Recto: two columns, 183 mm long; left: 54 mm wide, right: 67 mm wide.
Verso: ruled for two columns, only left column has text, 94 mm long, 54 mm wide, 43 lines.
82 lines, line height: ca. 2.2 mm, intercolumn: 6.3 mm

Authenticity

A comparison of the AAC with the Bodmer *arbor* concludes that the AAC was produced between November 2009, the date when the Bodmer *arbor* was published on e-codices, and March 2014, when the collector contacted e-codices for the first time. The two trees of consanguinity have exactly the same line breaks across the two copies, an unprecedented phenomenon for prose works. The text of the AAC follows the Bodmer leaf precisely, including the eight-line omission caused by the physical mutilation of the Bodmer leaf. The script is precisely the same, even copying the same errors and corrections.

Identical Line Breaks and Identical Text

Medieval scribes only copy line breaks from their exemplars when there is a good reason to do so, such as a poetic work, or a diagram. Given the difference in script types, manuscript sizes, and the choices of abbreviations, practically the only cases where a pre-modern manuscript is found having the same line breaks as another manuscript is when that other manuscript is a modern facsimile. This feature alone calls the authenticity of the AAC into question.
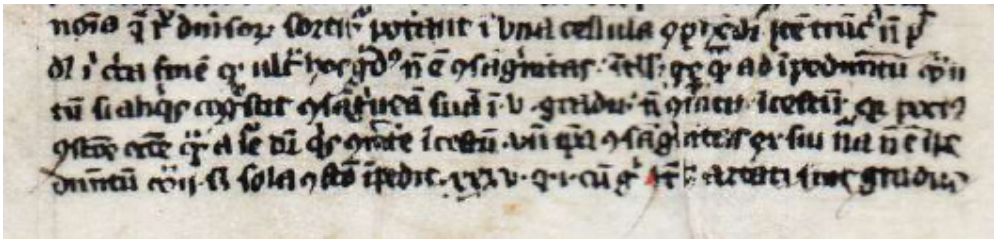
Figure 8: AAC, recto, column a, bottom five lines (78–82), showing the same lacuna as in the Bodmer leaf, Figure 3
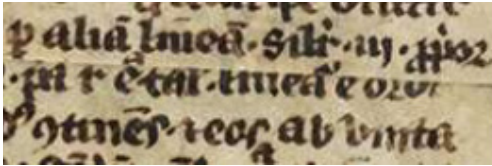

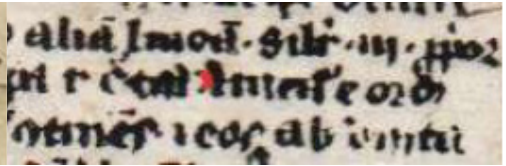**Figure 9: Bodmer *arbor*, f. 1rb, ll. 78–80**   **Figure 10: AAC recto, column b, ll. 78–80**

The AAC and the Bodmer leaf have the same text. The Bodmer leaf, as noted above, is a fragment via mutilation. The AAC has the exact same lacunae (compare Figure 8, below, to Figure 2, above).

Identical Script

In spite of being much smaller than the Bodmer leaf, the script of AAC is identical to the point of showing the same errors and corrections of them. For example, both the Bodmer leaf and AAC have the same expunction of *descendencium* on lines 19–20. Indeed, AAC follows the Bodmer leaf even where the mutilation at the bottom of the page superimposes the upper part. Specifically, in the right column of the Bodmer leaf, the photo shows a juxtaposition omitting needed abbreviation marks and adding other ones (Figures 9-10).

The line partially submerged by the cut reads: *prima regula est talis: linea est ordi<nata>*. The vertical stroke over the *p (prima)*, the *a* over the *r (regula)*, and the lines over the two *es (est)* are covered by the upper leaf, along with the top of the *l*. On the other hand, what looks like a superscript *a* appears over the *e (est talis)* and a *-ur* abbreviation over the *a* in *linea*.[15] These phenomena all appear in AAC.

In addition, the *l*'s (*linea*) shaft has been restored, but bending to the left, and the punctuation dot following *talis* has, along with the top part of the crossing stroke of the *l*, been suffused into the letter, with a dot of rubric making it a nonsensical *Ainea*[2]. Likewise, the *d* of *ordi-nata* seems to have been "repaired" by continuing the stroke of the *pro* in *proprio* above. A similar repair can be seen in

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15   The missing passage from the mutilated Bodmer leaf began: *sobrino tertio, filius eius secum est in tertio in linea equali. Deinde pro numero personarum adicitur gradus*. The Bodmer scribe consistently uses a closed *a* above a *per* for *persona*, so it is likely the *a* and the *–ur* are the visible abbreviations for *personarum adicitur*.

the left column, at the right edge, where, on the Bodmer leaf, the bottom part of a *quod* abbreviation is visible directly next to the open *a* of the abbreviation for *m(atrimon)ii* (Figure 2); on AAC, the two abbreviations for the previous word, *impedimentum,* are connected with a single stroke and joined to the bottom of the *quod* abbreviation (Figure 8).

AAC follows the Bodmer *arbor* slavishly, but not perfectly. As can be seen in the examples above, AAC is missing some of the fine lines in the Bodmer leaf, and has other fine strokes instead. Many of these appear at the end of lines, possibly intending to simulate words that continue across line-breaks or scribal flourishes. Even cursory inspection, however, reveals that neither option is viable. For example, on the left column of the recto, line 10 ends with *eodem* written *eodē*; the word is complete, and therefore not in need of a continuation dash, and on the Bodmer leaf, a flourish is already present; the scribe has drawn out the final stroke of the *e.* Yet the AAC adds another stroke, at the bottom of the *e,* as if the scribe finished writing the letter *twice.* Elsewhere, where fine pen work should be present, it is missing. For example, AAC draws the blue capital *Q* of the *incipit* in a different way than Bodmer's copy of *Quia tractare.*

The capital *Q* of the Bodmer leaf cuts across the descender of the *x* in *expositione,* and a bit of rubric highlights the *e* of the same word. AAC's capital *Q* has a descender that escapes the text block, but the *expositione* is missing exactly the bits of the *ex* that were written over with red- and blue-colored ink.

These examples could be multiplied without even leaving the first column. The Bodmer leaf's line 10, *personarum* has a fine sweeping descender on the *–rum* abbreviation that AAC completely loses. Lines 19–20 see *descendencium* written and expunged with a series of dots, which AAC connects.

In short, while the artisan who fashioned AAC was capable of fine strokes, such strokes do not appear where they should, and rather appear where they should not.

The Two *Arbores* Compared

The comparison of the scripts between the AAC and the Bodmer leaf is sufficient to show that the AAC is a modern copy. The miniatures – traditionally the focus of authentication efforts – are here of secondary concern. Nevertheless, a few observations should be made. The AAC miniature of the *arbor* is clearly related to the Bodmer *arbor,* but, just as clearly, does not copy the illumination as faithfully as it copies the text. This is most evident when the text and drawing mix, in the medallions of the tree.

Indeed, the circles of the Bodmer *arbor* appear to have been drawn with a compass and all have the same shape and size (Figures 13, 15). Only after the circles were drawn was the text added, as can be seen in the only case in the Bodmer leaf where the text exceeds the bounds of the medallion.
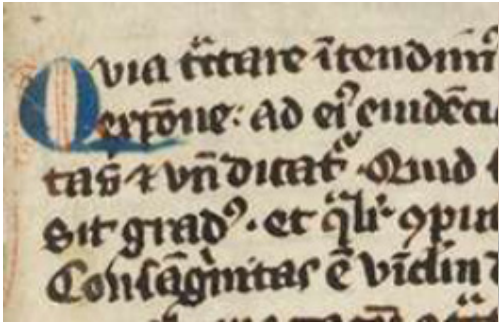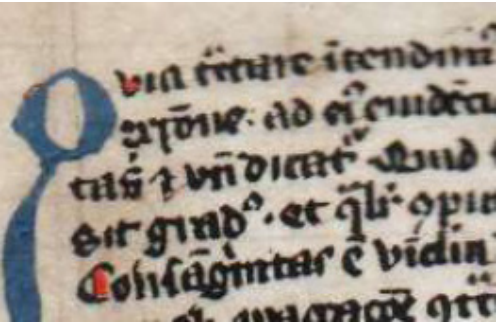
Figure 11: Bodmer leaf, f. 1ra, incipit

Figure 12: AAC, column a, incipit
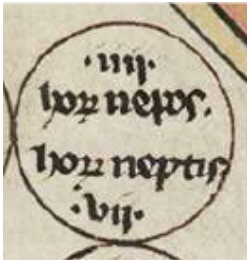
Figure 13, 14: Bodmer *arbor*, **f. 1r medallion and corresponding AAC medallion: "IIII/ horum nepos/ horum neptis/ VII"**
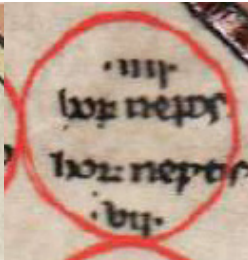
Figure 15, 16: Bodmer *arbor*, **f. 1r medallion and corresponding AAC medallion: "II / frater patruelis / vel amitinus / soror patruelis / vel amitina."**
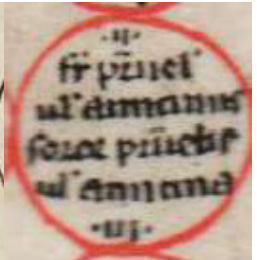
The top of the *s* of *amitinus* escapes the circle, in spite of the scribe's efforts to keep it in (Figure 15). On the other hand, AAC's circles are hand-drawn in rubric after the text (Figure 14, 16).

The practice universally followed by authentic *arbores* is to draw the medallions first and then fill in the text; the Bodmer *arbor* is done this way, and none of the 38 *arbores* in the appendix was made by drawing circles around text. Indeed, in numerous cases, the circles were drawn, but the text was never added (#21, #22, #24, #25, #30, #31).

Moreover, the page decorations in AAC and the Bodmer leaf are extremely close. Above, we observed the close stylistic similarities between the Bodmer *arbor* and the Frankfurt, Praed. 90 *arbor* (#17), and also noted that, even in similar cases, significant variation occurs. In that case, moreover, the Bodmer leaf is significantly larger than the Frankfurt *arbor* (357 x 250 mm as opposed to 234 x 159 mm), and the space available undoubtedly affected the depiction as well. The AAC, on the other hand, copies closely the motifs of the Bodmer *arbor*, and this in spite of being even smaller than the Frankfurt *arbor* (200 x 150 mm). Indeed, a good measure of the size of the genealogical trees is the diameter of the medallions, which, in the images contained in the appendix, varies from 10 mm (#19) to 23 mm (#3). The Bodmer *arbor* is one of the larger ones, with the medallions measuring 20 mm across; the AAC is one of the smaller ones,

measuring just 11 mm across. Yet the layout of the page and the use of motifs is closer between these two then between any other two trees in the whole series.[16]

The Ad Paulinum Leaf

As noted above, when the collector contacted us in March 2014, the discussion turned on two images purchased at the same time from the same dealer, the other being the first leaf of the *Epistula ad Paulinum*. After closer examination, it became apparent that this leaf too was a fake, produced in the same way and apparently by the same forger.

The collector asked whether it was common to place an *arbor consanguinitatis* at the beginning of a medieval Bible (as discussed above, it was not; the Bodmer leaf is the only case that we know of, and that was done in the twentieth century) and noted that both the *arbor* leaf and the *Ad Paulinum* one had damage in a similar place. Specifically, when viewed from the recto, on the lower-right side there are two holes in both pieces of parchment, roughly the same shape and 6.5–6.7 mm apart from each other (Figures 18 and 19).

Like AAC, the *Ad Paulinum* leaf (=AAP) is 200 mm long, but, unlike it, it is only ca. 139 mm wide, or roughly 10 mm narrower than AAC. Its text, too, is a direct copy of a manuscript available on e-codices, Aarau, Aargauer Kantonsbibliothek, MsWettF 11, f. 1r. The manuscript in Aarau comes from the abbey of Wettingen and was originally produced in a German-speaking area in the thirteenth century.[17] It measures 315 x 225 mm.

Again, it is unheard of for a medieval manuscript to be a line-by-line copy of another manuscript, and for such a copy of a German manuscript (in this case, the Wettingen Bible) to appear together with a similar copy of a French manuscript (the Bodmer *arbor*), is in itself sufficient proof of forgery. There are several other indicators. The artisan had the same issues producing AAP as with AAC: corrections are copied, but only if they are in the same ink color as the text, and attempts are made to correct shortcomings in the manuscript. Thus, on lines 10–11 of the Wettingen Bible, *novos adivisse* shows two pecularities. First, a hole in the parchment makes the *v* ambiguous; second, *adivisse* has been corrected from *audivisse* by erasure (Figure 20). AAP tries to fix *novos* but ends up with an unconvincing *nonos*, and the space for the deletion is visible, but not the letter that was deleted (Figure 21). These examples suffice to show that AAP's text is a

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16   For a comparison of the two *arbores*, see also the interactive feature: http://fragmentology. ms/issues/1-2018/duba-and-flueler_fragments-and-fakes/image-comparisons/. For a printable PDF with the two images to scale, see http://fragmentology.ms/documents/Arbores%20 to%20scale.pdf.

17   C. Bretscher-Gisiger and R. Gamper, *Katalog der mitteralterlichebn Handschriften des Klosters Wettingen*, Dietikon-Zürich 2009, 112–115 (https://www.e-codices.ch/en/description/kba/ WettF0011/).

Figure 17: The anonymous *Ad Paulinum* leaf

Figure 18: mirror image of AAC, verso, holes in parchment
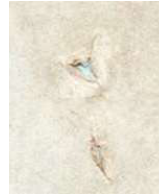
Figure 19: Ad Paulinum leaf, recto, holes in parchment
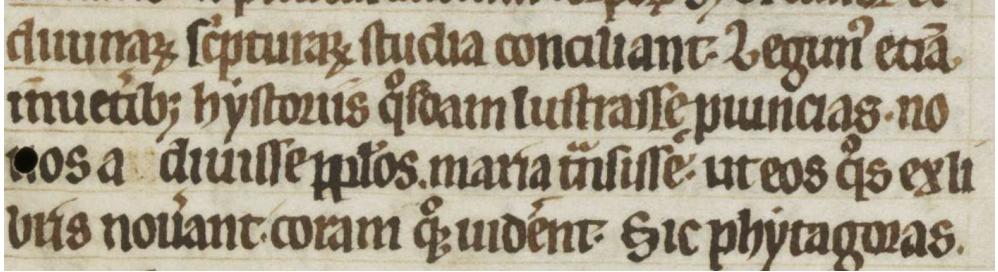
Figure 20: Wettingen Bible, f. 1ra, detail showing hole in parchment (*novos*)
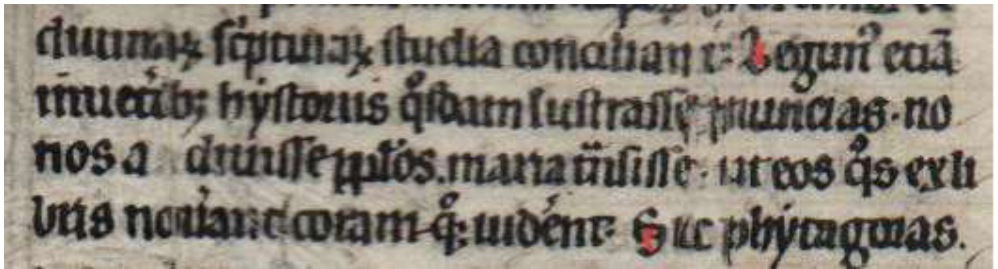
Figure 21: AAP, detail showing crude correction of hole in parchment (*nonos*).

modern copy of the Wettingen Bible; the reader is invited to compare the texts further.

AAP's Miniatures

The illuminations, however, are different from their sources. While elements of the AAP clearly derive from the Wettingen Bible, others, such as the vine motif, seem closer to the Bodmer manuscript.[18] At its heart, however, the AAP illumination is nonsense. The *incipit* to the *Epistula ad Paulinum* is *Frater*, and practically every historiated initial to this text is also an *F*. When that *F* is a historiated initial, it features Saint Jerome writing the letter. So it is with the *Epistula* in the Bodmer manuscript and with the Wettingen Bible. The other nine copies of Ad Paulinum available on e-codices and containing the incipit all feature capital *F*s

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18   e.g., f. 141v.

(1, 2, 3, 4, 5, 6, 7, 8, 9).[19] AAP's initial, on the other hand, rises from the line as if it were an *F*, but at the top changes design, incorporating some sort of angled roof, and thus destroying the top bar of the *F*. Perhaps this is because the *I* of incipit was written in rubric in the Wettingen Bible and does not appear in AAP, so the artisan tried to transform the capital *F* into an *I*. Moreover, the saint writing at the writing table in the initial seems to be wearing the brown of a Franciscan's habit.

Summary: The Anonymous Leaves were produced between 2009 and 2014.

The forger behind AAC and AAP procured two pieces of blank or mostly blank[20] parchment, probably from the same source. He or she then copied in an extremely detailed and precise manner the text from Bodmer 28, f. 1r–v onto the AAC leaf. The text of AAC is so close to the Bodmer leaf, that, correcting for the distortion of the parchment, the two can be lined up precisely. While the text is practically identical, all elements using color are not, suggesting a different process.

Bodmer 28 is unique in that it is the only known case of a medieval *arbor consanguinitatis* added before a Bible manuscript, an addition most probably made in 1956. For the second leaf, the forger chose to make the beginning of Jerome's *Epistula 53 ad Paulinum*, a copy of which is found on f. 2r–v of Bodmer 28. Rather than copy Bodmer 28 again, the artisan copied the text from another manuscript found on e-codices, Aarau, Aargauer Kantonsbibliothek, MsWettF 11. After copying the text precisely, the forger added to both AAC and AAP (in a seemingly random manner) light pen strokes at the end of lines, occasionally between words (on AAP), and elsewhere to conceal places where the parchment of his sources was defective. Then the forger added the colored elements by hand: rubrics, circles, illuminations and the rest.

Bodmer 28 has documented provenance back to July 1920, and the *arbor* to 1956; MsWettF 11 can be traced through the sixteenth century. AAP and AAC have no provenance and first came to our attention in March 2014. Such a precise duplication of the text of the two manuscripts could not have been made without a high-quality reproduction. Given the fact that the AAP and AAC leaves each have less than half the surface area of the leaves in the Bodmer and Aarau

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19   These are Aarau, Aargauer Kantonsbibliothek, MsWettF #1, f. 1r; Cologny, Fondation Martin Bodmer, Cod. Bodmer 187, f. 33r; Engelberg, Stiftsbibliothek, Cod. 3, f. 2v; Lausanne, Bibliothèque cantonale et universitaire de Lausanne, U 964, f. 1r; Porrentruy, Bibliothèque cantonale jurassienne, Ms. 6a, f. 1r; Sion, Archives du Chapitre, Ms. 15, f. 1v; Solothurn, Zentralbibliothek, Cod. S 438, f. 1r; St. Gallen, Kantonsbibliothek, Vadianische Sammlung, VadSlg Ms. 332, f. 2r; St. Gallen, Stiftsbibliothek, Cod. Sang. 913, p. 5.

20   On AAC, recto, bottom left-hand corner there appears to be signs of a *probatio pennae*.

manuscripts, such a reproduction would have to be scalable. Since the forger chose two manuscripts freely available on e-codices, and the text of the leaves matches precisely the photographs, it stands to reason that the e-codices images were the source for the documents. The Bodmer manuscript was published on e-codices on December 21, 2009,[21] and the Aarau codex on November 4, 2010; therefore AAC and AAP were made after these respective dates and before March 2014, when the e-codices team was first contacted with images of the fakes.

Forgeries in Contemporary Manuscript Culture

The case of these two simulated medieval manuscript leaves, their fabrication, circulation on the international market, and discovery provides the occasion for numerous observations on the role of fragments and loose leaves in contemporary society, the relationships between researchers, collectors, and dealers, and the cultural impact of digital libraries.

In the wake of the debate concerning the so-called Jesus' Wife Papyrus, Christopher Jones has proposed a syntax of forgery, which he describes as "the various components, from the intellectual and social situation into which the forgery is introduced, through the forger himself (I have not discovered an example of a woman forger), his motives and materials, the reception that his product receives, both positive and negative, down to the aftermath of continued debate."[22] Alongside this syntax, Jones identifies "an often-repeated sequence of deception, acceptance and rejection."

The present article proposes a rejection of the two leaves, AAC and AAP. We believe that a fraud has been perpetrated, but our purpose in publishing this study is not to denounce a crime. The forger is unknown to us. Among the victims, those who paid money on the belief that the documents were genuine would, were they named, suffer the added injustice of having their reputation tarnished merely because they failed to recognize a new method of faking manuscripts. Those institutions who suffered the misappropriation of resources they published for a public good, including two libraries and e-codices, have no hope of recovering damages.

On the other hand, remaining silent would do disservice to the medieval manuscript community. This case involves a method of faking manuscripts that met with some success, a method that, until recently, was unfeasible, and this study details ways such fakes may be detected. Moreover, the fabricator took

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21   A low-quality image of the Bodmer *arbor* was published in E. Pellegrin, *Manuscrits latins de la Bodmeriana*, Cologny-Genève 1982, plate 2. The photo, as printed, furthermore truncates the *a* in *linea*, on line 75, right hand side, a feature that the AAC maintains.

22   C. Jones, "The Jesus' Wife Papyrus in the History of Forgery", *New Testament Studies* 61(2015), 369.

advantage of the advent of digital libraries publishing scientific photographs of fragments, and in particular, of e-codices, which one of this article's authors founded in 2005 and has directed ever since. Silence on the existence of these fakes and the techniques to make them only benefits the forgers.

The Forger's Motivation

In discussing how forgeries need a favorable environment in order to succeed, Jones observed that "a forger may have a particular person or group of persons in mind, either because he considers him or them an easy 'mark' or, as has happened with other forgers, because he nourishes a secret grudge against the establishment... Forgers also forge to make money, though this is probably less true with forgeries of manuscripts than of art-works, where the potential returns are so much higher."[23] Fifty years ago, when single leaves of medieval manuscripts were sold for modest amounts of money, this might have been the case.[24] Moreover, as we saw in the first section, *arbores consanguinitatis* circulated on individual leaves or bifolia, and so, unlike most single-leaf sales, a single-leaf *arbor* could be a complete manuscript and not a fragment (although, as we saw above, mutilation made the Bodmer leaf a fragment). Given the prices we have seen for *arbores consanguinitatis*, such as the 2016 published price for AAC of over 50,000, the potential returns are quite impressive.[25]

Indeed, whoever made AAC and AAP had very low material costs: a few old pieces of parchment, such as flyleaves from broken books, a small amount of ink, some silver, and maybe some gold. Unlike a painting, a miniature does not need to be exceptionally well executed to be valuable; a semi-competent drawing still qualifies. Combined with the high selling prices, the market in manuscript leaves has become ripe for exploitation by forgers and frauds.

Certainly, an academic who endorses what later turns out to be a forgery or a dealer who sells one as genuine can, after the discovery, suffer a loss of face so great that it might explain the motivation of the forger. Yet in this case, it seems almost certain that the motivation was purely monetary.

Production of AAC and AAP: Projection or Computer Printer?

With the raw materials in hand, how did the artisan go about producing these leaves? Based on an analysis of the photographs alone, our answer to this question must be tentative. First, as we saw, the script was produced, and then

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23   Jones, "*Jesus' Wife Papyrus* in the History of Forgery", 372.

24   C. de Hamel, "Selling Manuscript Fragments in the 1960s", in *Interpreting and Collecting Fragments of Medieval Books. Proceedings of the Seminar in the History of the Book to 1500*, ed. L.L. Brownrigg and M.M. Smith, London 2000, 47–56, at 49.

25   For a comparable (but genuine) example of a bifolium containing both an *arbor consanguinitatis* and an *arbor affinitatis*, see Appendix I, #35, estimated to sell at auction for between 30,000 and 50,000 GBP (~35,000–55,000 Euro).

the illuminations were added. The artisan began with images downloaded from the e-codices website, images offered by the Fondation Martin Bodmer and the Aargauer Kantonsbibliothek, respectively, then under a [Creative Commons Attribution-NonCommercial #3.0 license](). As we showed above, not just the text, but the very shape of the letters and abbreviations came from images available on e-codices. We have two hypotheses how this occurred.

First, the artisan could have used a high resolution digital image projector and projected the e-codices images onto the blank pieces of parchment. Then the artisan traced carefully the script that was visible. The second, more plausible hypothesis is that the forger downloaded the e-codices images and used photo enhancement software to mask out all elements except for the script, resulting in the loss of some of the fine details, corrections, and similar phenomena. Then the forger used a monochromatic printer to print the script onto the parchment. Additional brush strokes were added to cover physical defects in the e-codices manuscripts, to compensate for some of the fine detail loss, and to make it look like a manuscript. We cannot determine conclusively what method was used, but it is certain that the technique involved advanced technology and digital images. After the script was copied, the illuminations and anything in a color other than black were added by hand.

Acceptance as Genuine, Detection, and Rejection

As noted above, we do not have information on how the AAC, at least, managed to convince professionals in the medieval manuscript trade of its authenticity. The fact that the Bodmer leaf does not appear in Schadt's catalogue of *arbores* undoubtedly helped it evade detection. Moreover, most of our observations on authenticity concern the script, while much of the market value of thirteenth-century manuscripts comes from the miniatures.

In fact, it was the similarity of AAC's illumination to that of the Bodmer *arbor* that drew our attention to AAC's existence.[26] The collector then in possession of AAC had seen the Bodmer *arbor* as part of one of e-codices' social media campaigns[27], and wrote to inquire about the similarity of the miniatures; the fact that the text was identical was not mentioned. As noted above, this paleographical oddity was in itself sufficient to call into question the authenticity of the manuscript, but not to stop its circulation.

Our determination that the AAC is inauthentic is primarily based on paleographical criteria. Based on palaeography alone, it is a twenty-first century forgery. Other material and circumstantial evidence corroborates this determination.

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26   The similarity can even be detected by image-matching software, such as Pinterest. [https://www.pinterest.com/pin/420312577716485852/visual-search/?x=#16&y=#16&w=530&h=671]() (Accessed 13 July 2018), where the first similarity the AAC returns is to Bodmer 28.

27   An image of the leaf was published on Flickr: [https://www.flickr.com/photos/e-codices/albums/72157629853043183]().

Fragments and Fakes

In the world of manuscript studies, fragments have been a particular target for forgery. The most famous manuscript fakes are generally forged fragments, and thus research into fakes and forgeries belongs to the discipline of Fragmentology. The motivation is not always financial. In the nineteenth century, the Königinhofer and Grünberger manuscripts were forged by Václav Hanka out of a mix of romanticism, patriotism, and the desire for recognition, and the Königinhofer manuscript, at least, played a fundamental role for Czech nationalism[28] Other fakes were made not with the intention of deceiving, but in clear agreement with the owner, to bring damaged manuscripts back to beautiful state, additional illuminations were added by gifted and somewhat less-gifted artists.[29] The "Spanish Master" certainly had artistic ambitions as well, and he fooled the nascent fragment trade with his forged artworks; and yet today his works are appreciated as a witness to the reception of the Middle Ages.[30]

A history of manuscript forgeries has yet to be written.[31] It would show that forgeries are phenomena that spring from contemporary perspectives and interests and seek to influence them. The recently awoken research interest in manuscript fragments will certainly have an effect on the public perception of such fragments, and ultimately influence the market. Forgeries follow as the shadows of these developments. The forgery of the *arbor* is a sign of this; the forger used the most modern technical tools and knew the current interests, structural weaknesses and vanities of the art trade.

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28   M. Ivanov, *Tajemství Rukopisů Královédvorského a Zelenohorského* (=*The Secret of the Königinhofer and Grüneberger Manuscripts*), Třebíč 2000; see the German review by O. Květoňová, "Romantische Handschriftenfälschungen. Miroslav Ivano, *Tajemství RKZ* (Das Geheimnis der Königinhofer und Grüneberger Handschriften)", *Archiv für Kulturgeschichte* 54(1972), 168–173.

29   See, for example, the addition of thirteen miniatures by Caleb William Wing (1801–1875) into a book of hours owned by John Boykett Jarman, apparently with his permission; B. Roux, "Le goût d'imiter: parcours d'un livre d'heures florentin", in *Il più dolce lavorare che sia. Mélanges en l'honneur de Mauro Natale*, ed. F. Elsig, N. Etienne, G. Extermann, Milan 2009, 471–475.

30   See above all W. Voelkle and R.S. Wieck, *The Spanish Forger*, New York, Pierpont Morgan Library, 1978; Also useful is R.S. Wieck, "Folia Fugitiva. The Pursuit of the Illuminated Manuscript Leaf", *The Journal of the Walters Art Gallery*, 54(1996), 233–254.

31   In addition to the works cited above (notes 28-30), further notes can be found above all in B. Bischoff, *Latin Palaeography: Antiquity and the Middle Ages*, trans. D.O. Crónin and D. Ganz, Cambridge 1990, 46-47; other cases can be found, for example, in S. Hindman, *Manuscript illumination in the modern age. Recovery and Reconstruction*, Ann Arbor, 2001; A.N.L. Munby, *Connoisseurs and medieval miniatures*, 1750–1850, Oxford 1972; on the genesis of the Vinland Map and particularly the marketing strategies used, see K.A. Seaver, *Maps, Myths, and Men: The Story of the Vinland Map*. Stanford 2004. For histories of forgeries in neighboring disciplines, see, on literary forgeries, A. Grafton, *Forgers and Critics: Creativity and Duplicity in Western Scholarship*, Princeton 1990; on art forgeries, H. Keazor, *Täuschend Echt! Eine Geschichte der Kunstfälschung*, Darmstadt 2015.

The rise of digital libraries made the AAC and AAP forgeries possible. Publishing in high-quality images on the internet in open access has revolutionized contemporary manuscript culture. AAC and AAP are an unfortunate byproduct of this growth. The same high-resolution, scientific images that make online manuscript libraries a prime example of digital humanities' contribution to scholarship also makes them ideal for illicit use in an increasingly profitable market, itself expanded and fragmented through the internet.

These fakes have claimed at least six victims: not just the collector who first brought this to our attention, the auction house that allegedly sold it, and the dealer who most recently put it for sale, but also the two institutions who possessed the originals and allowed them to be published (under a non-commercial license), as well as the publisher, e-codices.

Medieval manuscripts are unique. No two pages are exactly alike, and each fragment, no matter how insignificant it may seem, witnesses an irreproducible and irreplaceable part of our human cultural heritage. For this reason, we value them beyond what can be assigned a monetary value, and the falsification of such manuscripts amounts to a fraud committed upon human culture. This value, we hope, is shared by many members of the manuscript community, and, the defense of it compels us to bring this manner of falsification to the attention of the community. This seems a cheap fake, made by an ignorant forger, but it's a cheap fake that fooled more than one expert; it came to our attention because of the engagement of a collector. And if this is a "cheap" fake, how many fakes are out there?

Appendix: Catalogue of French-style *arbores consanguinitatis* accessible on the Internet (July 2018)

In support of the study of the Bodmer leaf, and as a concrete expression of the current state of manuscript research on the internet, we provide here a catalogue of some 37 "French style" scepter-type *arbores consanguinitatis* that can be found on the internet. The majority of these images were found by using Schadt's catalogue; of the 71 *arbores* that he lists, 34 have some image on the open internet in 2018.

In the catalogue below, we give the following information:

Context: the text in which the *arbor* appears, and, if applicable, the texts in the manuscript surrounding the *arbor*.

Dimensions of page: length x width, as is standard for manuscripts, in millimeters; the source is either the online description, the print description in a catalogue, or "photogrammetry", that is, using the reference images and measuring the photograph.

Diameter of ego: Since the medallions are all the same size, a good idea of the size of the *arbor* itself can be had by measuring the diameter of the center medallion, "ego".

Image address: address of principal image; additional images are those that include details, are hosted on other websites, or are a different method of photography.

Image type: the two types found are digital photograph and scan of microfilm. Some of the additional photos appear to be scans of printed photographs.

Resolution: width x length, as is standard for images, in pixels. If available, the ratio of pixels to millimeters is given. If the ratio can be calculated from a reference image or from a description of the page's dimensions (="via photogrammetry").

Image Rights: when possible, we give the image rights published with the document. Unclear rights are indicated with a question mark (?). The abbreviations used (CC) refer to Creative Commons licenses.

1. Amiens, Bibliothèque Municipale 359, f. 356v
Context: Johannes Andreae, *Tractatus de consanguinitate*; in *Decretales Gregorii IX*
Dimensions of page: 430 x 261 mm, from photogrammetry; 430 x 270 mm, from print description[32]
Diameter of ego: 17 mm
Image address: http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=18686&VUE_ID=1599093
Image type: scan of microfilm

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32 E. Coyecque, *Catalogue générale des manuscrits des bibiliothèques publiques de France, Départements, tome XIX: Amiens*, Paris 1893, 164–165.

Resolution: 2268 x 1864, 3.9 pixels/mm (100 ppi)
Image rights: CC BY-NC

2. Amiens, Bibliothèque Municipale 360, f. 264v
Context: Henricus de Segusio (Hostiensis), *Summa*
Dimensions of page: 452 x 286 mm, from photogrammetry, 446 x 305 mm, from printed description[33]
Diameter of ego: 21 mm
Image address: http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=15275&VUE_ID=1390688
Additional images: http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=15275&VUE_ID=1390689
Image type: digital photograph
Resolution: 1984 x 2936, 5.8 pixels/mm (150 ppi)
Image rights: CC BY-NC

3. Amiens, Bibliothèque Municipale 361, f. 293r
Context: Henricus de Segusio (Hostiensis), *Summa*
Dimensions of page: 412 x 247 mm, from photogrammetry; 420 x 256 mm, from printed description[34]
Diameter of ego: 23 mm
Image address: http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=15276&VUE_ID=1390751
Additional images: http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=15276&VUE_ID=1390750 http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=15276&VUE_ID=1390749 http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=15276&VUE_ID=1390748
Image type: digital photograph
Resolution: 1960 x 2928, 6.4 pixels/mm (163 ppi)
Image rights: CC BY-NC

4. Berlin, Staatsbibliothek, lat. fol. 2, f. 263v
Context: *Quia tractare* in Gratianus, *Decretum*
Dimensions of page: unknown
Diameter of ego: unknown
Date of origin: 1280–1300
Image address: http://www2.oberlin.edu/images/Art315/17974.JPG
Image type: digital photograph of detail
Resolution: 948 x 643
Image rights: Unknown

5. Bordeaux, Bibliothèque Municipale 398, f. 23v
Context: *Quia tractare*, before *Decretales Gregorii IX*
Dimensions of page: 392 x 246 mm, from photogrammetry; 413 x 247 mm, from printed description[35]

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33 Coyecque, *Catalogue générale des manuscrits des bibiliothèques publiques*, 165–166.
34 Coyecque, *Catalogue générale des manuscrits des bibiliothèques publiques*, 166–167.
35 C. Couderc, *Catalogue générale des manuscrits des bibliothèques publiques de France, Départements, t. XXIII*, Paris 1894, 212–213.

Diameter of ego: 13 mm
Date of origin: 1267–1300
Image address: http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=3663&VUE_ID=857933
Image type: scan of microfilm
Resolution: 5440 x 4410, 9.7 pixels/mm (246 ppi)
Image rights: CC BY-NC

6. Brügge, Openbare Bibliotheek, 365, f. 2v
Context: *Quia tractare*, before *Liber Extra* with glosses
Dimensions of page: 370 x 250 mm, from online description
Diameter of ego: 15 mm
Date of origin: 1280–1300
Image address: http://cabrio.bibliotheek.brugge.be/browse/webgaleries/MS365/index.html
Additional images: https://bibliotheekbrugge.wordpress.com/2014/05/#23/de-boom-van-bloed-verwantschap/ http://www.flandrica.be/items/show/1048/
Image type: digital photograph in Flash viewer
Resolution: 800 x 1200 (flandrica.be image), no reference images, ca. 2.8 px/mm (72 ppi)
Image rights: All Rights Reserved

7. Brno, Moravská zemská knihovna v Brně, A 60, f. 142v
Context: Gaufredus de Trani, *Summa super titulos Decretalium*
Dimensions of page: 235 x 170 mm, from online description
Diameter of ego: 13 mm
Date of origin: 1240–1260
Image address: http://www.manuscriptorium.com/apps/index.php?direct=record&pid=MZK___-MZKB__A_60_____1QWZ5X1-xx
Image type: digital photograph
Resolution: 2665 x 3656, no reference images, ca. 15.0 px/mm (380 ppi)
Image rights: CC BY-NC-SA

8. Cambridge, Fitzwilliam Museum, 262, f. 4v
Context: *Decretum Gratiani* with *Glossa ordinaria* of Bartholomaeus of Brescia
Dimensions of page: 436 x 290 mm, from printed description[36]
Diameter of ego: 13 mm
Place of origin: France or England
Date of origin: 1300–1310
Image address: http://www.fitzmuseum.cam.ac.uk/gallery/law/page1.html
Image type: digital photograph in online exhibition
Resolution: 567 x 800, 1.7 px/mm (from photogrammetry) (44 ppi)
Image rights: All Rights Reserved

9. Città del Vaticano, Bibliotheca Apostolica Vaticana (B.A.V.), Reg. lat. 980, f. 4v
Context: *Quia tractare* in a miscellany (fragments and loose leaves bound together)
Dimensions of page: 400 x 262, from photogrammetry

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36 F. Wormald and P.M. Giles, *A Descriptive Catalogue of the Additional Illuminated Manuscripts in the Fitzwilliam Museum Acquired between 1895 and 1979 (Excluding the McClean Collection)*, v. 1, Cambridge 1982, 196–198.

Diameter of ego: 13 mm
Date of origin: 1280–1300
Image address: https://digi.vatlib.it/view/MSS_Reg.lat.980
Image type: digital photograph
Resolution: 2352 x 3540, 7.8 px/mm (200 ppi)
Image rights: All Rights Reserved

10. Città del Vaticano, BAV, Vat. lat. 1382, f. 299v
Context: *Hoc modo legas* in *Liber Extra*
Dimensions of page: 395 x 265 mm, from photogrammetry
Diameter of ego: 12 mm
Date of origin: 1267–1300
Image address: https://digi.vatlib.it/view/MSS_Vat.lat.1382
Image type: digital photograph
Resolution: 2419 x 3741, 7.4 px/mm (188 ppi)
Image rights: All Rights Reserved

11. Città del Vaticano, BAV, Vat. lat. 1383, f. 3v
Context: *Quia tractare*, preceded by Johannes Andreae, *Circa lecturam arboris...*, followed by Bernardus Bottoni, *Glossa ordinaria in Decretalium Gregorii PP. IX libros I-V cum glossulis*. On 3r is a table of contents (the *arbor* is a separate codicological unit).
Dimensions of page: 432 x 262 mm, from photogrammetry
Diameter of ego: 14 mm
Place of origin: Italy
Date of origin: Before 1295[37]
Image address: https://digi.vatlib.it/view/MSS_Vat.lat.1383
Image type: digital photograph
Resolution: 2465 x 3843, 7.7 px/mm (196 ppi)
Image rights: All Rights Reserved

12. Città del Vaticano, BAV, Vat. lat. 1390, f. 211r
Context: *Quia tractare* inserted between books 3 and 4 of the Decretals
Dimensions of page: 463 x 202 mm, from photogrammetry
Diameter of ego: 13 mm-diameter medallions (no ego)
Place of origin: Spain
Date of origin: 1360–1370
Image address: https://digi.vatlib.it/view/MSS_Vat.lat.1390
Image type: digital photograph
Resolution: 2727 x 4116, 7.8 px/mm (200 ppi)
Image rights: All Rights Reserved

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37   Schadt, *Die Darstellungen*, p. XXX!!, assigns this codex to Germany and the first third of the fourteenth century. On f. 3r, there are autobiographical notes in two hands, added after the main text. Hand A: "Curente anno domini Millesimo ducentesimo nonagesimo quinto, indictione octava, die xi januarii habui primam tonsuram a venerabili patre domino O dei gratia episcopo Parmensi, et Conradus de Altemanis Parmensis fecit instrumentum clericatus." Hand B: "Anno domini M.CCC XIX die sexto mensis augusti factus fui prepositus. Item M. CCC XXVII die xix magii factus fui beneficiatus."

13. Cleveland, Cleveland Museum of Art, J.H. Wade Fund, 1954.1 (fragment)
Context: Henricus de Segusio (Hostiensis), *Summa*
Dimensions of page: 442 x 275 mm, from online description
Diameter of ego: 17 mm
Place of origin: Paris
Date of origin: ca. 1280
Image address: http://www.clevelandart.org/art/1954.#1
Image type: digital photograph
Resolution: 2307 x 3659, 8.2 px/mm (208 ppi)
Image rights: "personal, non-commercial use"

14. Colmar, Bibliothèque Municipale, 502 (85), f. 265r
Context: Gaufredus de Trani, *Summa Aurea*
Dimensions of page: 385 x 275 mm, from online description
Diameter of ego: 14 mm
Date of origin: 1301–1400
Image address: http://bvmm.irht.cnrs.fr/iiif/17323/canvas/canvas-1427417/view
Additional images: http://bvmm.irht.cnrs.fr/iiif/17323/canvas/canvas-1427418/view (detail)
Image type: digital photograph
Resolution: 4872 x 6496, 16.7 px/mm, from photogrammetry
Image rights: CC BY-NC

15. Douai, Bibliothèque Municipale, 602, f. 3v
Context: *Decretales Gregorii IX*, Johannes Andreae, *In liber Extra*
Dimensions of page: 425 x 256 mm, from photogrammetry; 440 x 270 mm, from printed description[38]
Diameter of ego: 14 mm
Date of origin: 1234–1266
Image address: http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=11194&VUE_ID=1308526
Additional images: http://bvmm.irht.cnrs.fr/consult/consult.php? reproductionId=11194&VUE_ID=1308527 (detail) http://bvmm.irht.cnrs.fr/consult/consult.php? reproductionId=11194&VUE_ID=1308528 (reference)
Image type: digital photograph
Resolution: (reference image) 4608 x 3664, 8.1 px/mm (206 ppi)
Image rights: CC BY-NC

16. Frankfurt, Stadtbibliothek, Barth 12, f. 3v
Context: Johannes de Deo, *Declarationes arboris consanguinitatis et affinitatis*, followed by Bernardus Bottoni, *Glossa ordinaria in Decretalium Gregorii PP. IX libros I-V cum glossulis*
Dimensions of page: 440 x 273 mm, from online description
Diameter of ego: 17 mm
Place of origin: France
Date of origin: 1301–1333
Image address: http://sammlungen.ub.uni-frankfurt.de/msma/content/pageview/4598847
Image type: digital photograph
Resolution: download limited to 800 x 1337, 2.5 px/mm (64 ppi)

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38   C. Dehaisnes, *Catalogue générale des manuscrits des bibliothèques publiques de France, Départements, t. VI: Douai*, Paris 1878, 369–370.

17. Frankfurt, Stadtbibliothek, Praed. 90 (1547), f. 170v
Context: Gaufredus de Trani, *Summa aurea*
Dimensions of page: 234 x 159 mm, from online description
Diameter of ego: 12 mm
Place of origin: France
Date of origin: 1276–1300
Image address: http://sammlungen.ub.uni-frankfurt.de/msma/content/pageview/4011084
Additional images: http://www2.oberlin.edu/images/Art315/82972.JPG
Image type: digital photograph
Resolution: download limited to 1504 x 2403, 8.0 px/mm (203 ppi)
Image rights: All Rights Reserved?

18. Karlsruhe, Badische Landesbibliothek, Aug. perg. 41, f. 186v
Context: *Quia tractare* in *Decretales Gregorii IX*, between books III and IV
Dimensions of page: 370 x 229 mm, from online description
Diameter of ego: 13 mm
Date of origin: 1280–1300
Image address: https://digital.blb-karlsruhe.de/blbhs/content/pageview/3487604
Image type: digital photograph
Resolution: dowload limited to 1400 x 1801, 4.4 px/mm (112 ppi)
Image rights: CC BY-SA

19. Karlsruhe, Badische Landesbibliothek, Aug. perg. 46, f. 89v
Context: Gaufredus de Trani, *Summa super titulis decretalium*
Dimensions of page: 357 x 229 mm, from online description
Diameter of ego: 10 mm
Date of origin: 1301–1400
Image address: https://digital.blb-karlsruhe.de/blbhs/content/pageview/4405601
Image type: digital photograph
Resolution: download limited to 1400 x 1955, 4.9 px/mm (124 ppi)
Image rights: CC BY-SA

20. Leipzig, Universitätsbibliothek Leipzig, Ms 965, f. 1v
Context: *Quia tractare* in *Decretales Greg. IX* with *Glossa ordinaria*
Dimensions of page: 390 x 260 mm, from online description
Diameter of ego: 13 mm
Place of origin: France?
Date of origin: 1343
Image address: http://www.manuscripta-mediaevalia.de/dokumente/html/obj31565214
Image type: digital photograph
Resolution: 675 x 1080, 2.2 px/mm (from photogrammetry) (56 ppi)
Image rights: Public Domain

21. London, British Library, Royal 10 D VII, f. 257v
Context: *Quia tractare* in *Decretales Greg. IX* with *Glossa ordinaria* of Bernard of Parma
Dimensions of page: 435 x 370 mm, from online description
Diameter of ego: 14 mm

Place of origin: France
Date of origin: 1281–1300
Image address: http://www.bl.uk/catalogues/illuminatedmanuscripts/ILLUMIN.ASP?-Size=mid&IllID=32806
Additional images: http://www.bl.uk/catalogues/illuminatedmanuscripts/ILLUMIN.ASP?-Size=mid&IllID=47665 (detail) https://www.europeana.eu/portal/de/record/9200397/BibliographicResource_3000126285678.html (aggregator)
Image type: digital photograph
Resolution: 1052 x 1500, 3.31 px/mm (from photogrammetry) (84 ppi)
Image rights: Public Domain

22. München, Bayerische Staatsbibliothek, clm 28160, f. 320r
Context: Henricus de Segusio (Hostiensis), *Summa*
Dimensions of page: 410 x 260 mm, from photogrammetry; 410 x 275 mm, from printed description[39]
Diameter of ego: 15 mm
Place of origin: France
Date of origin: 1301–1325
Image address: http://daten.digitale-sammlungen.de/bsb00105795/image_643
Additional images: https://www.bildindex.de/document/obj00013764?part=#4
Image type: digital photograph
Resolution: 3322 x 5013, 12.0 px/mm (304 ppi)
Image rights: CC BY-NC-SA

23. München, Bayerische Staatsbibliothek, clm 28218, f. 213v
Context: In a legal miscellany, after *Hoc modo legas arborem*, and before *Capitula decretalium*.
Dimensions of page: 240 x 165 mm, from photogrammetry; 255 x 170 mm, from printed description[40]
Diameter of ego: 12 mm
Place of origin: France
Date of origin: 1276–1300
Image address: http://daten.digitale-sammlungen.de/bsb00105797/image_430
Additional images: https://www.bildindex.de/document/obj00013768?part=#4
Image type: digital photograph
Resolution: 2625 x 3799, 15.4 px/mm (391 ppi)
Image rights: CC BY-NC-SA

24. Paris, Bibliothèque Mazarine, 1295, f. 193v
Context: *Quia tractare* in *Decretales Gregorii IX*, between books four and five
Dimensions of page: 380 x 250 mm, from printed description[41]
Date of origin: 1319
Image address: http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=14551&VUE_ID=1378252

39   H. Hauke, *Katalog der lateinischen Handschriften der Bayerischen Staatsbibliothek München, Clm 28111–28254,* (Catalogus codicum manu scriptorum Bibliothecae Monacensis 4, pars 7), Wiesbaden 1986, 75–76.
40   Hauke, *Katalog der lateinischen Handschriften der Bayerischen Staatsbibliothek München, Clm 28111–28254,* 182–184.
41   A. Molinier, *Catalogue des manuscrits de la Bibliothèque Mazarine*, v. 2, Paris 1886, 57.

Image type: digital photograph of detail
Resolution: 528 x 794, no reference image
Image rights: CC BY-NC

25. Paris, Bibliothèque Sainte-Geneviève, 329, f. 244v
Context: Henricus de Segusio (Hostiensis), *Summa*
Dimensions of page: 410 x 280 mm, from printed description[42]
Diameter of ego: 15 mm
Date of origin: 1289
Image address: http://bvmm.irht.cnrs.fr/consult/consult.php?VUE_ID=1353431
Additional images: http://bvmm.irht.cnr.fr/consult/consult.php?reproductionId=13262&VUE_ID=1353429 https://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=13262&VUE_ID=1353430 (details)
Image type: digital photograph
Resolution: 2624 x 1792, 4.1 px/mm (from photogrammetry) (100 ppi)
Image rights: CC BY-NC

26. Paris, Bibliothèque nationale de France, latin 3950A, f. 3v
Context: *Quia tractare*
Date of origin: 1251–1300
Image address: http://picssr.com/photos/iuscanonicum/interesting/page4?nsid=31648496
Additional images: https://flic.kr/p/5w1jVw
Image type: digital photograph
Resolution: 2448 x 3264, no reference images
Image rights: All Rights Reserved

27. Paris, Bibliothèque nationale de France, latin 12883, f. 33v
Context: *Quia tractare* in *Coutume de Normandie*
Dimensions of page: 324 x 217 mm, from photogrammetry
Diameter of ego: 13 mm
Date of origin: ca. 1300
Image address: http://gallica.bnf.fr/ark:/12148/btv1b10720812j/f38.image
Image type: scan of microfilm
Resolution: 1407 x 1054, 3.8 px/mm (97 ppi)
Image rights: Public Domain

28. Paris, Petit Palais, Musée des Beaux-Arts de la ville de Paris, LDUT 0095, f. 30v
Context: *Grand Coutumier de Normandie*
Dimensions of page: 310 x 210 mm, from online description
Diameter of ego: 13 mm
Date of origin: 1334–1366
Image address: https://bvmm.irht.cnrs.fr/mirador/index.php?manifest=https://bvmm.irht.cnrs.fr/iiif/19014/manifest
Image type: digital photograph
Resolution: 5436 x 4080, 12.2 px/mm (310 ppi)
Image rights: CC BY-NC

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42   C. Kohler, *Catalogue des manuscrits de la Bibliothèque Sainte-Geneviève*, Paris 1893, 198–199.

29. Reims, Bibliothèque Municipale, 696, f. 2v

Context: *Quia tractare*, followed by *Decretales Gregorii IX* with *glossa ordinaria.*

Dimensions of page: 365 x 238 mm, from photogrammetry; 372 x 248 mm, from printed description[43]

Diameter of ego: 12 mm

Date of origin: 1301–1333

Image address: http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=2402&VUE_ID=624565

Image type: scan of microfilm

Resolution: 3776 x 2844, 7.1 px/mm (180 ppi)

Image rights: CC BY-NC

30. Reims, Bibliothèque Municipale, 697, f. 1v

Context: Before *Decretales Gregorii IX*, with *glossa ordinaria* (Bernard of Compostella junior)

Dimensions of page: 442 x 266 mm, from printed description.[44]

Image address: http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=9606&VUE_ID=1282157

Additional images: http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=9606&VUE_ID=1282158 (detail)

Image type: digital photograph

Resolution: 3150 x 2100 detail, no reference image

Image rights: CC BY-NC

31. Reims, Bibliothèque Municipale, 713, f. 231r

Context: Hostiensis

Dimensions of page: 450 x 291 mm, from photogrammetry; 454 x 288 mm, from printed description[45]

Diameter of ego: 15 mm

Date of origin: ca. 1320–1330

Image address: http://bvmm.irht.cnrs.fr/consult/consult.php?VUE_ID=678951

Image type: scan of microfilm

Resolution: 3561 x 2776, 5.5 px/mm (140 ppi)

Image rights: CC BY-NC

32. Troyes, Bibliothèque Municipale, 97, f. 273v

Context: Hostiensis

Date of origin: ca. 1320–1330

Image address: http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=6665&VUE_ID=1240991

Additional images: http://bvmm.irht.cnrs.fr/consult/consult.php? reproductionId=6665&VUE_ID=1240992 (detail)

Image type: digital photograph

Resolution: 2491 x 3014, no reference image

Image rights: CC BY-NC

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43 H. Loriquet, *Catalogue générale des manuscrits des bibliothèques publiques de France, Départements, t. XXXIX*, Paris 1904, 45–47.

44 Loriquet, *Catalogue générale… t. XXXIX*, 47–48.

45 Loriquet, *Catalogue générale… t. XXXIX*, 62–63.

33. Troyes, Bibliothèque Municipale, 99, f. 250r
Context: Hostiensis
Image address: http://bvmm.irht.cnrs.fr/consult/consult.php?VUE_ID=1241026
Additional images: http://bvmm.irht.cnrs.fr/consult/consult.php?VUE_ID=1241027
Image type: digital photograph
Resolution: 2483 x 3014, no reference image
Image rights: CC BY-NC

34. Troyes, Bibliothèque Municipale, 1244, f. 2v
Context: *Quia tractare*, followed by *Liber extra*
Date of origin: ca. 1280–1320
Image address: http://bvmm.irht.cnrs.fr/consult/consult.php?reproductionId=7011&VUE_ID=1244229
Additional images: http://bvmm.irht.cnrs.fr/consult/consult.php? reproductionId=7011&VUE_ID=1244230 (detail)
Image type: digital photograph
Resolution: 2489 x 3014, no reference image
Image rights: CC BY-NC

Arbores not in Schadt's catalogue

35. Christie's, "Script and Illumination Leaves from Medieval and Renaissance Manuscripts", online sale, 24 Nov.–3 Dec. (2017?), Lot 11
Context: *Quia tractare* as a separate bifolium
Dimensions of page: 340 x 230 mm, from online description
Diameter of ego: 11 mm
Place of origin: Paris
Date of origin: 1235–1266
Image address: https://onlineonly.christies.com/s/script-illumination-leaves-medieval-renaissance-manuscripts/raymond-penyafort-1175-1275-quia-tractare-intendimus-paris-mid-13th-c-#11/22918
Image type: digital photograph
Resolution: 3200 x 2444, 6.6 px/mm (from photogrammetry) (168 ppi)
Image rights: All Rights Reserved

36. Cologny, Fondation Martin Bodmer, Codex Bodmer 28, f. 1r
Context: *Quia tractare* bound in Bible
Dimensions of page: 357 x 250 mm, from online description
Diameter of ego: 20 mm
Place of origin: Northern France
Date of origin: 1267–1300
Image address: http://e-codices.ch/en/fmb/cb-0028/1r
Additional images: https://fragmentarium.ms/view/page/F-w3l8/1135/15979 (multishot with offset flash)
Image type: digital photograph
Resolution: 4872 x 6496, 17.1 px/mm (436 ppi)
Image rights: CC BY-NC

37. Tournai, Grand Seminaire, BE 006, f. 1v

Context: Followed by *Decretum* with Bartholomaeus Brixiensis' commentary
Dimensions of page: 425 x 260 mm, from online description
Diameter of ego: 15 mm
Image address: http://initiale.irht.cnrs.fr/codex/13661/14299
Image type: digital photograph
Resolution: 5436 x 4080, 9.0 px/mm (230 ppi)
Image rights: All Rights Reserved?