

# Oh Where Is My Paintbrush?

Tools for Insular Manuscript Production in the British Isles  
850 AD to 950 AD

Dame Katerinka Lvovicha, OP

Kat Toomajian

Kingdom Arts and Sciences Competition: Triathlon Entry

Category 24: Research Paper

April 2023

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## Introduction

Richly illuminated and extensively calligraphed texts are a treasure of medieval Europe. Of particular interest are the Hiberno-Saxon Insular manuscripts produced in northern Europe and the British Isles. While some research has been done into the pigments used in these manuscripts, there is not much to go on regarding the tools utilized in their production. It is assumed that those tools would be similar to the ones in use both before the fall of Rome and in later periods around which more substantial scholarship has been done. However, we also know that some technologies are “lost” and rediscovered centuries later: the pottery wheel, for example, was abandoned at the end of the Roman period and not reintroduced until the late 9th century<sup>1</sup>. So the question remains: what tools were used to paint and write Insular manuscripts?

## Area of Focus

This research was inspired by the Book of Deer, MS li.6.32 (Deer), an illuminated pocket gospel manuscript most likely created between 850 AD and 1000 AD in Scotland by an Irish scribe<sup>2</sup>. This manuscript holds the peculiar honor of being the oldest Scottish manuscript to survive to modern times<sup>3</sup>. Additionally, these so-called “pocket gospels” represent a small but distinct sub-sect in the corpus of insular book art; a maximum of eleven manuscripts are reliably included in this group.<sup>4</sup> While attempts were made to only look at evidence that was typologically, geographically, and temporally consistent with the manuscript in question, (i.e. 850 AD to 950 AD in Scotland), it was necessary to cast a wider net to increase the amount of data available for analysis.

## My Working Theory

The two tools under investigation are paint brushes and pens. Both paintbrushes and pens (of the metal variety) are still used by modern recreationists for the painting and calligraphing of manuscript-style documents to varying degrees of success. My theory is

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<sup>1</sup> Perry, G. (2019). Situation vacant: Potter required in the newly founded late Saxon burh of Newark-on-Trent, Nottinghamshire. *Antiquaries Journal*, 99, 33-61.  
[https://eprints.whiterose.ac.uk/142566/3/ANTJ\\_PERRY.pdf](https://eprints.whiterose.ac.uk/142566/3/ANTJ_PERRY.pdf)

<sup>2</sup> University of Cambridge. (n.d.). *Book of Deer MS li.6.32*. Cambridge Digital Library.  
<https://cudl.lib.cam.ac.uk/view/MS-II-00006-00032/3>

<sup>3</sup> Aberdeen City Council. (2022, July 7). *Scotland's oldest surviving manuscript goes on display at Aberdeen Art Gallery*. Aberdeen City News. Retrieved from  
<https://www.aberdeencity.gov.uk/news/scotlands-oldest-surviving-manuscript-goes-display-aberdeens-art-gallery>

<sup>4</sup>Jackson, E. E. (2017). To Hold Infinity in the Palm of your Hand The Insular Pocket Gospel Books Re-evaluated. *University of York, PhD Thesis: History of Art*.  
<https://etheses.whiterose.ac.uk/17010/1/E%20Jackson%20Thesis%20Final%20Vol%201.pdf>

that similar tools were used in the creation of the Book of Deer - specifically, brushes made of some sort of animal hair bristle and quill pens.

## Definitions

For the purposes of this research, paint brushes or brushes are defined as instruments consisting of a bundle of fibers or hairs attached to a cylindrical object for the purpose of widely and evenly distributing a semi-fluid or fully fluid media across a surface. Pens are defined as instruments with a single, flattened point which are used to narrowly and evenly distribute fluid media. Pens may be separated into three sections: reed (calamus), feather (quill, penna), and metal. When referred to simply as pens, the last category is excluded.

## Primary Evidence

First, we will explore two primary sources: written sources and archeological finds.

### Contemporary written sources

Given the apparent cultural significance of written documents,<sup>5</sup> there is not much contemporary information regarding the tools used in their production. In fact, the consensus among the scholarly community is that there is a distinct lack of information around the creation of book arts in general during this time.<sup>6</sup> For example, the places where manuscripts were made, called scriptoria, are known to exist only because manuscripts which were produced there are still extant;<sup>7</sup> no extant scriptoria has been uncovered in the archeological record.<sup>8</sup> Per Wiles, “the majority of work on the subject accepts the existence of scriptoria at ecclesiastical institutions and is focused on their output without trying to define precisely what form they took.”<sup>9</sup> Thus, it is not surprising that there isn’t much information about the tools given the relative silence of contemporaries on the subject of book arts in general. Thankfully, there are a few bits of documentation which can be used to craft a larger image of manuscript technology.

### Colloquies of Aelfric Bata

Scott Gwara and David W. Porter’s translation of the Colloquies of Aelfric Bata proved to be a valuable resource. A somewhat exaggerated depiction of life as a monastic student, it lists several tools which would be needed by a burgeoning scribe: “stiff pens, good for this kind of work . . . [and] wax tablets and styluses, penknives and knives, awls and rulers, vellum scraps and parchment, ink and razors, and whetstones and pens enough for writing and painting.”<sup>10</sup> Notably, writing and painting are two distinct

<sup>5</sup> *King Edward, with Æthelred and Æthelflæd of Mercia, at the request of Æthelrith, dux, renews the charter of a grant by Coenwulf, king of Mercia, to Beornnoth, comes, of 10 hides (cassati) at Islington, Middx. Latin* [Oxford, Bodleian Library, James 23 (S.C. 3860),]. (903AD). The Electronic Sawyer. <https://esawyer.lib.cam.ac.uk/charter/367a.html#>

<sup>6</sup> Smith, C. S., & Hawthorne, J. G. (1974). *Mappae Clavicula: A Little Key to the World of Medieval Techniques*. *Transactions of the American Philosophical Society*, 64(4), 1-128. <https://doi.org/10.2307/1006317>

<sup>7</sup> Wiles, K. (2013). *The Language and Copying Practices of Three Early Medieval Cartulary Scribes At Worcester* [PhD Thesis, University of Leeds]. <https://etheses.whiterose.ac.uk/6293/1/K%20Wiles%20Thesis.pdf>

<sup>8</sup> Horn, W., & Born, E. (1986). The Medieval Monastery as a Setting for the Production of Manuscripts. *The Journal of the Walters Art Gallery*, 44, 16-47. <http://www.jstor.org/stable/20169021>

<sup>9</sup> Wiles, K. (2013). *The Language and Copying Practices of Three Early Medieval Cartulary Scribes At Worcester* [PhD Thesis, University of Leeds]. <https://etheses.whiterose.ac.uk/6293/1/K%20Wiles%20Thesis.pdf>

<sup>10</sup> Bata, A., & Aelfric. (1997). *Anglo-Saxon conversations : the Colloquies of Aelfric Bata* (S. Gwara & S. J. Gwara, Eds.; D. W. Porter, Trans.). Boydell Press. [https://www.google.com/books/edition/Anglo\\_Saxon\\_Conversations/pLyFBdohh0EC?hl=en&gbpv=0](https://www.google.com/books/edition/Anglo_Saxon_Conversations/pLyFBdohh0EC?hl=en&gbpv=0)

tasks (translated from Latin *scribendum* and *pingendum*) but reportedly use the same tool (*pennam*). No separate paintbrush tool is mentioned. This text can be reliably dated between 975 and 1005 to Winchester, England.<sup>11</sup> While this puts it slightly outside the target range of this research, it still provides valuable insight.

## Mappae Clavicula

The *Mappae Clavicula* is a craft treatise which contains recipes for pigments, inks, and various gold alchemies. The oldest version was initially penned in the 9th century at the Reichenau Monastery in Germany, but the most complete version, and the one that mentions the instruments in question, likely dates to 1170.<sup>12</sup> While this treatise primarily acts as a recipe book, it does mention both reed and quill pens, as well as brushes, a few times: “write with a quill or paint brush; now write with a reed pen or painter’s brush; first smear the reed pen with liquid alum; wipe it off with a bristle brush.” All these references are found in the later, more complete edition of the *Mappae*. While it is late for the purposes of this research, the mentions of these tools cannot be ignored wholesale, especially because some editions of the manuscript likely passed through England before the twelfth century.<sup>13</sup>

## Etymologies of Isidore of Seville

The Etymologies of Isidore of Seville, dated 615AD to 625AD in Spain, is one of the earliest encyclopedias, detailing many aspects of mundane life.<sup>14</sup> Isidore says that “the scribe’s tools are the reed-pen and the quill, for by these the words are fixed onto the page . . . the tip of a quill is split into two.” He goes on to clarify that the reed-pen is from a plant and a quill is from a bird. I reached out to Dr. Michelle P. Brown, a renowned paleographer, regarding this passage and she stated that, “Isidore is writing retrospectively about late Roman practices”<sup>15</sup> and is therefore not necessarily a reliable source of contemporary usage. This work, too, does not fit the timeframe, falling approximately 300 years too early. It is included here to support earlier practice, not necessarily to indicate contemporary practice.

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<sup>11</sup> Bata, A., & Aelfric. (1997)

<sup>12</sup> Smith, C. S., & Hawthorne, J. G. (1974). *Mappae Clavicula: A Little Key to the World of Medieval Techniques*. *Transactions of the American Philosophical Society*, 64(4), 1-128.  
<https://doi.org/10.2307/1006317>

<sup>13</sup> Clarke, M. (2004). Anglo-Saxon Manuscript Pigments. *Studies in Conservation*, 49(4), 231-244.  
<https://doi.org/10.2307/25487700>

<sup>14</sup> *The Etymologies of Isidore of Seville* (S. A. Barney, J. A. Beach, O. Berghof, & W. J. Lewis, Trans.). (2006). Cambridge University Press.  
[https://www.google.com/books/edition/The\\_Etymologies\\_of\\_Isidore\\_of\\_Seville/3ep502syZv8C?hl=en&gbpv=0](https://www.google.com/books/edition/The_Etymologies_of_Isidore_of_Seville/3ep502syZv8C?hl=en&gbpv=0)

<sup>15</sup> Brown, M. P. (2023, 03). *Email message* [Unpublished personal correspondence].

## Exeter Riddles

More scholarly inquiry has been conducted into contemporary discussion of pigments, but even those are thin on the ground: in his article about Anglo-Saxon<sup>16</sup> manuscript pigments, Mark Clarke bemoans that, “there is no text written by an Anglo-Saxon author in which the processes and materials of making pigments are described.”<sup>17</sup> He then goes on to describe how he identified pigments by researching texts where paint materials are referenced incidentally, occasionally in unusual sources, including “farming treatises, place names, and riddles.” I, too, found that riddles, specifically the Riddles of the Exeter Book (960 AD - 980 AD, England)<sup>18</sup> are an incredibly rich source of information regarding possible tools and materials used in manuscript production as well as techniques.

To start, Exeter Riddle 60 contains references to reeds or reed-pens.<sup>19</sup> Dr. Brett Roscoe translates the text<sup>20</sup> as follows:

*I was by the shore, near the sea-cliff, with the surging of the waves. I remained fixed at my first place; there were few of mankind who there, in that solitude, could see my home, but each morning the wave in its dark, watery embrace enclosed me. Little did I know that ever before or after, I – mouth-less – across the mead-bench would have to speak, exchange words. It is a kind of wonder to one who does not know such things, how, with a clever mind, the point of a knife, the right hand and the thought of man together in a point, press me for this purpose: that I with you should, in the presence of us two alone, boldly declare my message, so that no men should spread our words more widely.*

The answer to this riddle is a reed or reed-pen. The references to spreading a message with words, the knife, right hand, and thought of man together “at a point,” and the origin place of being at a shore all point to a reed pen, certainly. Additionally, the reference to “surging of the waves” is evocative of other commentary found in colophons.<sup>21</sup> The colophons, ranging in date from the

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<sup>16</sup> Clarke defines the Anglo-Saxon period as, “manuscripts made in England between c. 600 ad (the date of the earliest surviving manuscript that was made in the British Isles) and c. 1066 ad (the Norman Conquest).” This aligns with the area of focus for this paper.

<sup>17</sup> Clarke, M. (2004). Anglo-Saxon Manuscript Pigments. *Studies in Conservation*, 49(4), 231-244. <https://doi.org/10.2307/25487700>

<sup>18</sup> *The Exeter Book*. (960 AD - 980 AD). The British Library. <https://www.bl.uk/collection-items/exeter-book>

<sup>19</sup> Cavell, M., & Roscoe, B. (2017). *Commentary for Exeter Riddle 60*. The Riddle Ages. <https://www.theriddleages.com/riddles/post/commentary-for-exeter-riddle-60/>

<sup>20</sup> See the following for the original text: <https://www.theriddleages.com/riddles/post/exeter-riddle-60/>

<sup>21</sup> Porck, T. (n.d.). Scribal complaints: Early medieval English copyists and their colophons. <https://thijsporck.com/2017/06/12/scribal-complaints/>

eighth to the eleventh century, compare completing their task of writing to a sailor reaching the shore. While some scholars believe that reed pens were no longer in use by this time,<sup>22</sup> there is insufficient evidence to say that they weren't. Further, I would argue that this riddle shows that the technology was still known by the very fact that it is referenced.

Another riddle, Exeter 18, may be interpreted as an inkhorn, among other possible options. The text<sup>23</sup>, translated again by Dr. Brett Roscoe, is as follows:

*I am a strange creature, I cannot speak words, nor talk with men, although I have a mouth, and a broad belly. I was on a boat with more of my kin.*

Roscoe mentions inkhorn as a possible answer, but is dubious. He rightfully notes that "writing implements in the riddles often riff on the fact that they have the ability to communicate," and this object specifically says it cannot speak words. I would argue that the inkhorn itself does not speak words, only facilitates the words (i.e. holds the ink which is used by the pen to speak the words). The reference to being on a boat is similarly evocative to the colophons mentioned earlier. While Roscoe may not be convinced as to the meaning of this riddle, I think inkhorn is a perfectly reasonable interpretation.

Other riddles refer to inkwells in less contentious ways. For example, Exeter 93 is commonly agreed to refer to an inkwell.<sup>24</sup> It mentions that it "swallows black wood and water" which would seem to be a reference to a black reed pen and ink.

The answer to Exeter Riddle 26 is a book, bible, or other manuscript. The applicable portion of the text, translated by Dr. Megan Cavell, is as follows:<sup>25</sup>

*A certain enemy robbed me of my life, stole my world-strength; afterward he soaked me, dunked me in water, dragged me out again, set me in the sun, where I swiftly lost the hairs that I had. Afterward the hard edge of a knife, with all unevenness ground away, slashed me; fingers folded, and the bird's joy [spread] over me with worthwhile drops, often made tracks, over the bright border, swallowed*

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<sup>22</sup> Cavell, M., & Roscoe, B. (2017). *Commentary for Exeter Riddle 60*. The Riddle Ages. <https://www.theriddleages.com/riddles/post/commentary-for-exeter-riddle-60/>

<sup>23</sup> Cavell, M., & Roscoe, B. (2014). *Commentary for Exeter Riddle 18*. The Riddle Ages. <https://www.theriddleages.com/riddles/post/commentary-for-exeter-riddle-18/>

<sup>24</sup> Cavell, M. (2021). *Commentary for Exeter Riddle 93*. The Riddle Ages. <https://www.theriddleages.com/riddles/post/commentary-for-exeter-riddle-93/>

<sup>25</sup> Cavell, M. (2014). *Commentary for Exeter Riddle 26*. The Riddle Ages. <https://www.theriddleages.com/riddles/post/commentary-for-exeter-riddle-26/>

*tree-dye, a portion of the stream, stepped again on me,  
journeyed, leaving behind a dark track.*

Of the riddles examined, this appears to be the most valuable as far as book art techniques and materials are concerned. It describes the parchment making process of killing the animal, then multiple rounds of soaking, drying, and scraping to remove the uneven texture. Then a knife was used to cut the parchment into pages and the quires were folded. “The bird’s joy” is a kenning-type reference to a quill pen, though it could be a paintbrush, The “worthwhile drops” could be paint, but since they leave a “dark track,” are more likely ink. The ink referenced appears to be oak gall; “tree-dye” being “swallowed” is a reference to how oak gall ink is made, by soaking parts of a tree in water.

Other riddles also refer to quill or feather pens. Consider Exeter Riddle 74,<sup>26</sup> as translated by James Paz:

*I was a young girl, a grey-haired woman, and a singular  
warrior at the same time; I soared with the birds and swam in  
the water, dove under the waves, dead among the fish, and  
stepped on land. I held a living spirit.*

The commentary identifies the quill from a bird that once flew (literally, then figuratively), was dipped in ink (“dove under the waves”) and was once again “on land” i.e. parchment. The living spirit is likely a reference to biblical text.

Exeter Riddle 51<sup>27</sup> compares a pen and fingers to something in the sky and the water, saying that it was very swift and left dark, black tracks. The “striving warrior who showed it - all four - the paths across ornamental gold” is a direct reference to a scribe who is penning the four gospels in an illuminated manuscript. While this riddle does not provide direct support for specific materials, it does indicate that the goldleaf may have been laid before the calligraphy was completed.

## Other Documents

Various texts, including Anglo-Saxon law records, the works of the Venerable Bede, and other secular texts were searched for incidental mention of manuscript production tools, as well as scholarly references to extant texts. A few colophons (end-of-document commentary by the writer) exist that reference sore fingers and bodies that imply

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<sup>26</sup> Cavell, M., & Paz, J. (2017). Commentary for Exeter Riddle 74. The Riddle Ages. <https://www.theriddleages.com/riddles/post/commentary-for-exeter-riddle-74/>

<sup>27</sup> Cavell, M., & Mize, B. (2017). Commentary on Exeter Riddle 51. The Riddle Ages. <https://www.theriddleages.com/riddles/post/commentary-for-exeter-riddle-51/>

uncomfortable instrument usage (and poor posture).<sup>28</sup> My own experience as a scribe confirms that long periods of writing with non-ergonomic tools (such as, say, a very thin feather or reed) are detrimental to my physical health. These are not satisfactory references in their own right, but can be utilized as one part of the greater context.

## Prior Research

Multiple searches were conducted to identify any prior scholarship in this area. While a fair amount of research has been conducted into the pigments, I was unable to find any other researchers who had explored the specific tools themselves to any significant extent. This may be a limitation of the resources which were available while this paper was being written, or it may be such an obvious and well-known piece of information that the experts in this area did not feel it was necessary to dive in any further.

## Impact of Teaching Styles

It is likely that the teaching of the manuscript arts was done by one-on-one or few-on-one instruction, rather than from books, which may explain the dearth of direct information about book art production and tools. Indeed, Bata's Colloquies indicate just this exact scenario. It is less instructional for a potential student, but instead represents an example for an instructor of how the teaching should be done.<sup>29</sup>

## Impact of Cultural Importance of Literacy

The general exclusion of painting/illumination in the early written sources can be attributed, in part, to the cultural significance of writing during this time. The act of writing and reading was considered, in and of itself, a form of sacrament: the body of Christ is the words; the blood of Christ is the ink.<sup>30</sup> To further emphasize this point, some inkwells in contemporary illuminations take the form of chalices,<sup>31</sup> and red ink is used frequently to evoke the image of blood. This was not a new or even localized concept to late Insular art: Isidore of Seville's Etymologies (615AD - 625AD, Spain) say that "the tip of the quill is split in two . . . [to] signify the Old and New Testaments, from which is

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<sup>28</sup> Jolly, K. L. (2012). *The Community of St. Cuthbert in the Late Tenth Century: The Chester-le-Street Additions to Durham Cathedral Library A. IV. 19*. Ohio State University Press.  
<https://muse.jhu.edu/book/24261>

<sup>29</sup> Bata, A., & Aelfric. (1997). *Anglo-Saxon conversations : the Colloquies of Aelfric Bata* (S. Gwara & S. J. Gwara, Eds.; D. W. Porter, Trans.). Boydell Press.  
[https://www.google.com/books/edition/Anglo\\_Saxon\\_Conversations/pLyFBdohh0EC?hl=en&gbpv=0](https://www.google.com/books/edition/Anglo_Saxon_Conversations/pLyFBdohh0EC?hl=en&gbpv=0)

<sup>30</sup> Jackson, E. E. (2017). *To Hold Infinity in the Palm of your Hand The Insular Pocket Gospel Books Re-evaluated*. University of York, PhD Thesis: History of Art.  
<https://etheses.whiterose.ac.uk/17010/1/E%20Jackson%20Thesis%20Final%20Vol%201.pdf>

<sup>31</sup> MacDurnan Gospels - Lambeth Palace MS 1370. (Ireland, 9th to 10th century).  
<https://images.lambethpalacelibrary.org.uk/luna/servlet/view/all/what/Gospel/Illuminated%2BManuscripts?sort=creator%2Ctype%2Cdate%2Ctitle>

pressed out the sacrament of the Word poured forth in the blood of the Passion.”<sup>32</sup> To read the text was to consume the Word of God, literally. It is not surprising, then, that this was the emphasis of the written sources, and, as we will find, the illuminations of the time as well.

The illumination aspect of book production does not appear to be emphasized until the late 11th century. This coincides with the advent of mass production of manuscripts and professional scribes. As described by Michael Gullick, professional scribes were lay people who were paid for their work in “money, kind, or both.”<sup>33</sup> The original religious texts were not necessarily intended for public distribution and the communities who received them were generally assumed to be literate. As manuscripts started to be produced for the non-literate population, illumination became more critical to spreading God’s word.

## Archeological evidence

There are few extant manuscript production tools in the archeological record. I combed through multiple museum and dig catalogs to limited success. I used wide search terms such as pen, brush, nib, reed, feather, quill, and paintbrush. As with all archeology, there is room for interpretation as to the use of the various instruments. Some things which are noted as being writing or painting instruments may not have been used for that. Similarly, I am sure there are other objects which are mislabeled as non-book art instruments which were, in fact, used to create manuscripts.

For the purpose of this research, the value of the archeological evidence lies primarily in construction and form; when available, these are more reliable sources of construction information than manuscript images or oblique references in texts.

It is interesting to note that even with significant geographic and temporal separation, the form of some of these items remain relatively static. Combined with the textual references, this lends credence to the idea that these tools could have potentially remained in continuous use through the period under investigation. It could also be attributed to the fact that there are only so many ways a pen can be cut/shaped if it is to be used as a pen.

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<sup>32</sup> *The Etymologies of Isidore of Seville* (S. A. Barney, J. A. Beach, O. Berghof, & W. J. Lewis, Trans.). (2006). Cambridge University Press.  
[https://www.google.com/books/edition/The\\_Etymologies\\_of\\_Isidore\\_of\\_Seville/3ep502syZv8C?hl=en&gbpv=0](https://www.google.com/books/edition/The_Etymologies_of_Isidore_of_Seville/3ep502syZv8C?hl=en&gbpv=0)

<sup>33</sup> Gullick, M. (1995). Professional Scribes in Eleventh and Twelfth Century England. *English Manuscript Studies*, 7, 1-24. <https://www.le.ac.uk/english/em1060to1220/culturalcontexts/2.htm>

## Reed Pens

Reed pens (*calamus*) are referenced multiple times in the written sources before and after 850 AD to 950 AD as shown above. The materials are relatively easy to source as reeds are a common plant material found across northern Europe. There is some disagreement as to whether reed pens would have been in use for manuscript production. While I cannot definitively state one way or the other, I can say that this is by far one of the simplest writing tools to make. A reed of sufficient stiffness could also be used as a wax tablet stylus.



34

*Reed pen cut into a nib at one end; inscribed in an unknown script; tip broken and slightly flattened. Length: 16.10 cm; Weight: 3 g; Width: 0.90 cm; Depth: 0.60 cm. Late Antique 3-7c or Early Islamic, 7-10c, found in Egypt.*

This reed pen was found over a thousand miles away from Aberdeen, and the date range is so wide as to be nearly useless. However, it does show the formation of the nib and gives an idea of dimension. Reeds come in a variety of shapes and sizes so knowing what one specific reed pen looked like can help inform the creation of other pens.



35

*Fragment of a reed pen. Height: 6.90cm. Dated 750 AD to 860 AD, China.*

This reed pen was also found a very long way from the British Isles. It is dated immediately before the time period under investigation. It is very similar in shape to both the Islamic reed pen shown above, as well as being very similar to modern, commercially available reed pens.

<sup>34</sup> *Reed Pen - EA5535* [Reed pen cut into a nib at one end; inscribed in an unknown script; tip broken and slightly flattened.]. (3AD to 10AD). British Museum.

[https://www.britishmuseum.org/collection/object/Y\\_EA5535](https://www.britishmuseum.org/collection/object/Y_EA5535)

<sup>35</sup> *Reed pen - MAS.480* [Fragment of a reed pen, China]. (750 AD to 860 AD). British Museum.

[https://www.britishmuseum.org/collection/object/A\\_MAS-480](https://www.britishmuseum.org/collection/object/A_MAS-480)

## Quill/Feather Pens

There are no extant quill or feather pens from this time period. This is likely because the feather material degrades easily when subject to adverse conditions. Dr. Michelle P. Brown notes that quills were the writing tool of choice for Insular scribes.<sup>36</sup> It is generally agreed that quills came into use after the fall of the Roman Empire in the 6th century<sup>37</sup> though I was unable to identify any specific source of this information. The textual references in the Exeter riddles indicate with some certainty that quill pens were in use 960 AD - 980 AD, England.<sup>38</sup>

## Metal Pens

These two metal pens are separated by at least 800 years, yet have almost identical forms. As metal pens are not mentioned in the literature and neither find was definitively datable to the 850-950 AD time period, they do not warrant further discussion. They are also not the subject of this paper. However, I did not feel comfortable excluding them from the corpus entirely as other metal pens both of similar and dissimilar shapes/types cannot be definitively ruled out from usage.



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*Metal pen. Copper alloy pen consisting of a hollow tube tapering to a point, with a split rib. Dated as "Roman." Museum of London.*



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*Metal pen. Copper alloy with a split nib and an ear scoop at the end. Length: 108 mm; Width: 5 mm. Dated as "Medieval." Museum of London.*

<sup>36</sup> Brown, M. P. (2023, 03). *Email message* [Unpublished personal correspondence].

<sup>37</sup> Leedham-Green, E. (2023). Early Modern Handwriting: An Introduction. English Handwriting Online. <https://www.english.cam.ac.uk/eres/ehoc/intro.html>

<sup>38</sup> *The Exeter Book*. (960 AD - 980 AD). The British Library. <https://www.bl.uk/collection-items/exeter-book>

<sup>39</sup> *Metal pen - A1315* [A copper alloy pen, consisting of a hollow tube tapering to a point, with a split rib.]. (Roman). Museum of London. <https://collections.museumoflondon.org.uk/online/object/9679.html>

<sup>40</sup> *Metal Pen - 82.145/2* [Copper alloy pen with a split nib. There is a small scoop at the other end of the pen.]. (Medieval). Museum of London.

<https://collections.museumoflondon.org.uk/online/object/29605.html>

## Paintbrushes

Please refer to Appendix A for images of the finds referenced in this section.

Paintbrushes remain an area of intense consternation. It has long been assumed that paint brushes were used in the creation of manuscripts, but my initial review of evidence did not clearly support that. One colleague stated that she didn't think it was likely that "the Romans packed up [from the British Isles] and took all their paint brushes with them."<sup>41</sup> I said that I needed more convincing because there was so little to go on at the beginning of my research. I was grasping at hairs, so to speak. And thus began the Great Paintbrush Hunt of 2023. I will note that the pen research occurred as a side effect of my attempts to prove that paint brushes were technology in use in the British Isles during the time of Deer.

There are extant paint brushes from 1600-300 BC in Egypt which are made from bundled plant material<sup>42 43</sup>, a reed with a crushed end which can be used to apply ink to papyrus,<sup>44</sup> as well as an extant Roman paintbrush made of wool attached to a stick with some kind of fiber.<sup>45</sup> There is also a single example of a bundle of hog bristles found in Denmark dated 1000 AD which are noted as being a brush for paint or possibly tar.<sup>46</sup> I do not find these alone to be compelling evidence for the existence of paintbrushes for the production of manuscripts during the timeframe of Deer.

As evidenced by the pottery wheel,<sup>47</sup> technology can disappear for several centuries and reappear virtually unchanged. However, there are several finds which indicate that the technology of bundling bristles for painting purposes did not disappear: cosmetic brushes.

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<sup>41</sup> Fuerst, M. J. (2023). Phone conversation [Unpublished personal correspondence].

<sup>42</sup> Paint Brush: EA36893 [Paint-brush formed from sticks bound together and frayed at one end; stained with red paint.]. (Ancient Egypt 1600-1100 BC).

[https://www.britishmuseum.org/collection/object/Y\\_EA36893](https://www.britishmuseum.org/collection/object/Y_EA36893)

<sup>43</sup> Paintbrush: EA 36899 [Paint-brush made from fine palm fibers, bound with strung fibers. The fibers have been cut at one end to create a brushing tip. Traces of red pigment are preserved on the brush end.]. (Ancient Egypt, 500-300 BC). British Museum.

[https://www.britishmuseum.org/collection/object/Y\\_EA36889](https://www.britishmuseum.org/collection/object/Y_EA36889)

<sup>44</sup> Egyptian Phragmites Brush [The end of the phragmites reed has been crushed so that the fibers have separated, forming a brush that can be used for applying ink to papyrus.]. (C. 110 BC). Museum of Writing. <https://www.museumofwriting.org/items/show/8030>

<sup>45</sup> Paint brush: 1907,1019.13 [Paint or cosmetic brush made of wool and reed.]. (1-4 AD). British Museum. [https://www.britishmuseum.org/collection/object/G\\_1907-1019-13](https://www.britishmuseum.org/collection/object/G_1907-1019-13)

<sup>46</sup> Nielsen, I. (2005). Viborg, Sønderød 1018-1030. Arkæologi og naturvidenskab i et værkstedsområde fra vikingetid. [https://viborgmuseum.dk/media/1277/viborg\\_soendersoe\\_saertryk.pdf](https://viborgmuseum.dk/media/1277/viborg_soendersoe_saertryk.pdf)

<sup>47</sup> Perry, G. (2019). Situation vacant: Potter required in the newly founded late Saxon burh of Newark-on-Trent, Nottinghamshire. *Antiquaries Journal*, 99, 33-61. [https://eprints.whiterose.ac.uk/142566/3/ANTJ\\_PERRY.pdf](https://eprints.whiterose.ac.uk/142566/3/ANTJ_PERRY.pdf)

## Cosmetic Brushes

The finds range from the fifth to seventh centuries across the British Isles and the northern continent. They are typically copper alloy cylinders which narrow at one end and are pierced with a wire for hanging. They are typically found at the hip or upper chest.<sup>48</sup> Bristles of either boar or horse have been found inside, wrapped with spun plant fiber.<sup>49</sup> One notable example was reportedly found intact: “The brush is made up of a tapering tube of sheet bronze . . . and projecting from the broad, open end of the tube is a bunch of black hairs which still survives in position.”<sup>50 51</sup>

These cosmetic brushes were primarily identified in graves which were dated to the fifth through eighth centuries both in the British Isles and the mainland (Denmark)<sup>52</sup> though there are a few which are dated as generically “Anglo-Saxon” meaning they could date as late as 1066 AD.<sup>53</sup>

The latest date for most of these cosmetic brushes is approximately 150 years before the earliest date for the Book of Deer, being 850AD. That being said, these finds were roughly contemporary with the creation of other Insular ‘pocket gospels’ that show similar techniques and principles as Deer as well as Insular manuscripts such as the Book of Durrow (Ireland, 700 AD).<sup>54</sup> I find this to be compelling proof that the technology to create a brush with bristles was not lost in England during this time, as we have physical evidence confirming otherwise. There is even a find which has what appears to be a wooden fragment inside. This could potentially be a brush handle.<sup>55</sup>

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<sup>48</sup> Williams, H. (2007). Transforming Body and Soul: Toilet Implements in Early Anglo-Saxon Graves. *Early Medieval Mortuary Practices: Anglo-Saxon Studies in Archaeology & History*, 14, 66-91. <https://howardwilliamsblog.files.wordpress.com/2018/04/williams-2007-body-and-soul-chester-rep-08-11-16.pdf>

<sup>49</sup> Dinwiddy, K. E., & Stoodley, N. (2016). An Anglo-Saxon Cemetery at Collingbourne Ducis, Wiltshire. *Wessex Archaeology*. [https://books.google.com/books?id=gSrhdAAAQBAJ&pg=SA4-PA9&dq=anglo+saxon+cosmetic+brushes&hl=en&newbks=1&newbks\\_redir=0&source=gb\\_mobile\\_search&sa=X&ved=2ahUKEwjpxPmPhvH9AhV2IUQIHf1yDK4Q6AF6BAgCEAM#v=onepage&q=anglo%20saxon%20cosmetic%20brushes&f=false](https://books.google.com/books?id=gSrhdAAAQBAJ&pg=SA4-PA9&dq=anglo+saxon+cosmetic+brushes&hl=en&newbks=1&newbks_redir=0&source=gb_mobile_search&sa=X&ved=2ahUKEwjpxPmPhvH9AhV2IUQIHf1yDK4Q6AF6BAgCEAM#v=onepage&q=anglo%20saxon%20cosmetic%20brushes&f=false)

<sup>50</sup> Brown, D. (1974). So-Called 'Needle Cases'. *Medieval Archeology*, 18, 151-158. [https://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-769-1/dissemination/pdf/vol18/18\\_151\\_154.pdf](https://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-769-1/dissemination/pdf/vol18/18_151_154.pdf)

<sup>51</sup> I contacted the Museum at which this artifact was reportedly located. They were unfortunately unable to locate the object for further inspection.

<sup>52</sup> Brown, D. (1974). So-Called 'Needle Cases'. *Medieval Archeology*, 18, 151-158. [https://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-769-1/dissemination/pdf/vol18/18\\_151\\_154.pdf](https://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-769-1/dissemination/pdf/vol18/18_151_154.pdf)

<sup>53</sup> Cosmetic Brush - AN1942.155. (400-1066 AD). Ashmolean Museum Oxford. [https://collections.ashmolean.org/collection/search/per\\_page/25/offset/0/sort\\_by/relevance/object/24147](https://collections.ashmolean.org/collection/search/per_page/25/offset/0/sort_by/relevance/object/24147)

<sup>54</sup> Jackson, E. E. (2017). To Hold Infinity in the Palm of your Hand The Insular Pocket Gospel Books Re-evaluated. University of York, PhD Thesis: History of Art. <https://etheses.whiterose.ac.uk/17010/1/E%20Jackson%20Thesis%20Final%20Vol%201.pdf>

<sup>55</sup> Cosmetic Brush - 1970,0406.476. (Early Anglo-Saxon). British Museum. [https://www.britishmuseum.org/collection/object/H\\_1970-0406-476](https://www.britishmuseum.org/collection/object/H_1970-0406-476)

I acknowledge that there is a bit of a mental jump from cosmetic brushes to manuscript painting brushes; however, please recall that my primary concern about paint brushes was that the technology to create them had disappeared. The cosmetic brushes combined with the bristle bundle from Denmark in c. 1000 paint a picture that paint brushes were, in fact, in use and could have been used for manuscripts as well as faces and tar.

### A Brief Babble About Bristles

The bristles noted in the Roman, Egyptian, and Anglo-Saxon brushes are of stiffer varieties. Through experimentation, I found that these kinds of bristles do not allow for the level of detail seen in Insular manuscripts as they are too stiff or do not hold paint well. Softer bristles produce effects which are closer to what is seen on the actual manuscripts themselves. A study of Anglo-Saxon husbandry showed that oxen, sheep, pigs, horses, and dogs were present on the island from 400-700 AD.<sup>56</sup> From these animals, satisfactory bristles could potentially be retrieved from the ears of oxen; cow hair is used in modern paintbrush production. Bristles could also potentially be collected from mustelids (i.e. stoats, weasels, and polecats), squirrels, and cats. Another consideration: it is very possible that the hairs of the breeds of pigs which were available were softer or had otherwise more admirable qualities in a paint brush. This is an area for further exploration.

### Metal Ferrules

Please see Appendix A for images of the finds referenced in this section.

I identified a few items as possible paint brush ferrules. One was identified as a cosmetic brush ferrule; however, it has a different shape than the other finds and does not have a hole for a loop for hanging.<sup>57</sup> It looks more like a modern ferrule than the cosmetic brush finds. I also found a single iron ferrule containing mineralized wood, likely from a handle.<sup>58</sup> It is the same size and general shape as the modern ferrules in use today. While bristle fibers are not associated with either find, the fact that mineralized wood was found with one supports the idea that they could, possibly, have been paintbrushes.

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<sup>56</sup> Wilson, D. (1962). Anglo-Saxon Rural Economy: A Survey of the Archaeological Evidence and a Suggestion. *The Agricultural History Review*. <https://www.jstor.org/stable/40273124?seq=12>

<sup>57</sup> Brush Ferrule [Luton Museum, Grave 41]. (500 - 600 AD). <https://www.bbc.co.uk/ahistoryoftheworld/objects/tAG8BYJiRy2tjFnwxcJBSA>

<sup>58</sup> Ferrule - 1980,1021.106 [Iron conical ferrule, containing mineralised wood.]. (425 AD to 650 AD). British Museum. [https://www.britishmuseum.org/collection/object/H\\_1980-1021-106](https://www.britishmuseum.org/collection/object/H_1980-1021-106)

## Other Ferrules

Much later sources such as Cennini<sup>59</sup> identify that feathers can be used as ferrules for paintbrush construction. I found no evidence to suggest that these were used for Insular manuscript production. However, given the overall sparsity of information regarding paintbrushes, it cannot be definitively ruled out.

## Summary of Written and Archeological Sources

It is likely that during the timeframe in question, both reed-pens and quills were in use. They may not have been used on the same manuscript. In the cited sources, pens are mentioned more frequently than brushes. It appears that the Latin word *pennam* may have been used interchangeably for reed-pens, quills, and paintbrushes, as shown by Bata.<sup>60</sup> Quills are mentioned more frequently than reed-pens, but both are referenced in the literature. No extant quills were identified. Two extant reed-pens were identified, with one being from the same general time period as Deer, though separated by several thousand miles.<sup>61</sup>

Paintbrushes cannot be conclusively proven to exist. However, the preponderance of evidence supports that the technology likely survived in the British Isles through at least the beginning of the Insular period and could have been used for the purposes of painting manuscripts. There are oblique references to paintbrushes in the textual sources. There are no definitive answers regarding the composition of the bristles of these paintbrushes. If handles were present, they were likely made of wood or reed.

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<sup>59</sup> Cennini, C. (1427). *The Craftsman's Handbook*. Dover Publications.

<sup>60</sup> Bata, A., & Aelfric. (1997). *Anglo-Saxon conversations : the Colloquies of Aelfric Bata* (S. Gwara & S. J. Gwara, Eds.; D. W. Porter, Trans.). Boydell Press.

[https://www.google.com/books/edition/Anglo\\_Saxon\\_Conversations/pLyFBdohh0EC?hl=en&gbpv=0](https://www.google.com/books/edition/Anglo_Saxon_Conversations/pLyFBdohh0EC?hl=en&gbpv=0)

<sup>61</sup> Reed pen - MAS.480 [Fragment of a reed pen, China]. (750 AD to 860 AD). British Museum. [https://www.britishmuseum.org/collection/object/A\\_MAS-480](https://www.britishmuseum.org/collection/object/A_MAS-480)

## Secondary Sources

In this section, we will discuss manuscript sources. The manuscripts themselves can be sources for the tools used to create them. Some information can be gleaned from the content of the manuscripts like images which contain depictions of book art instruments, while other information can be uncovered through careful examination of the techniques used in their creation.

### Experimentation Methods

In the course of research, experiments were conducted to determine what tools produced results that were closest to the extant documents, and specifically, the Book of Deer. Iron gall ink from Ian the Green's workshop was used. The substrate was both mixed media cotton paper and pergaminata. Secondary tests were conducted on vellum and parchment scraps. A drafting board was utilized to simulate the angle shown on many of the illuminations (see next section).

## Technique Analysis

### Script Analysis

It's not always possible to differentiate between tools used to create a line. Paleographers generally agree that simply examining the manuscript itself cannot reliably determine what tool was used to create it.<sup>62</sup> As Rosenfeld describes, a single line with a 45 degree angle could be created by multiple combinations of several factors, including pen body orientation, nib cut style, or turning the base material in various directions<sup>63</sup> and it is virtually impossible to distinguish between them without additional information. For this reason, the tools used to write the Book of Deer and other Insular manuscripts cannot be definitively identified by analysis of the text alone.

What can be confirmed is that the tool used for writing must have had a very fine tip and edge: the text area of the Book of Deer is 108mm x 71mm, and there are 22-26 lines per page.<sup>64</sup> This is very, very small. In trials, reed-pens consistently splintered before they came to a fine enough point. Quills were able to get that small but it was difficult to

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<sup>62</sup> Brown, M. P. (2023, 03). Email message [Unpublished personal correspondence].

<sup>63</sup> Rosenfeld, R. (2004). *Tres digiti scribunt: a Typology of Late-Antique & Medieval Pen Grips*. Ashgate Publishing.  
[https://www.academia.edu/36354421/Tres\\_digiti\\_scribunt\\_a\\_Typology\\_of\\_Late\\_Antique\\_and\\_Medieval\\_Pen\\_Grips\\_2004\\_pdf](https://www.academia.edu/36354421/Tres_digiti_scribunt_a_Typology_of_Late_Antique_and_Medieval_Pen_Grips_2004_pdf)

<sup>64</sup> University of Cambridge. (n.d.). *Book of Deer MS li.6.32*. Cambridge Digital Library.  
<https://cudl.lib.cam.ac.uk/view/MS-II-00006-00032/3>

keep the size consistent from quill to quill - on that scale, even a fraction of a millimeter can throw everything off. Most successful in these trials was a modern metal nib, specifically the Brause Steno #361 "Blue Pumpkin" nib. The point on this nib is so fine as to be nearly imperceptible, but it is flexible enough to split and create the thin/thick dichotomy of the Insular script despite the small size. Based on these findings, it seems likely that an experienced scribe could regularly cut a quill to a consistently small size.

## Painting Analysis

Painting analysis reveals slightly more information. For the purposes of this research, multiple contemporary manuscripts were examined to get sufficient data. However, the Book of Deer remained the manuscript against which painting technique experimentation was measured.

### Color Distribution

The art itself shows that the distribution of the pigment substrate was relatively even, with minimal "puddling" of color. This is relatively to achieve with a brush and difficult to achieve with a pen. The fluidity of the medium must be high to utilize a pen, and pigment granules do not typically stay sufficiently suspended in a low-viscosity solution. This can cause puddling, which, as mentioned, is not present in the majority of manuscripts. Testing confirmed that a reed pen can distribute pigment with a higher viscosity when it is cut wider. It appears to drag the pigment along the substrate in a manner which is similar to how a hair-bristle brush works.

Paint brushes made of soft animal hair such as mink or squirrel produced results most consistent with the extant manuscripts. The stiffer hairs like boar bristle and horse did not distribute the pigment evenly. It was also significantly more difficult to blend with a stiff brush or a reed-pen. Reed-pens and stiff bristle brushes are not the best tools for working on a very small scale. They are imprecise due to the nature of the physics of paint and the limitations of the tool material.

### Edges

The edges of painted areas are generally smooth and regular, displaying significant control over the instrument used to lay the paint. Experimentation confirmed that soft bristle brushes consistently produced results that were similar to the extant manuscripts. It is possible to use a wider-cut pen, such as a reed-pen, to smoothly lay down straight lines of paint, but it is easier with a brush.

### Both Tools Together

It is possible that paint brushes and pens were used together to complete illuminations. There are multiple examples of this; one specific example will be presented. An early ninth century manuscript from St. Gall, Switzerland (an area commonly associated with Insular art) presents some compelling evidence for the use of both paintbrushes and pens on the same illuminated initial on f. 92v and f. 106r:<sup>65</sup>



On both images, the gold appears to have been laid with a brush as the lines are consistently even throughout the stroke. This is very difficult to do with a pen without overlapping as it requires turning either the pen or substrate repeatedly. The gold is also laid evenly without any streaking, and the edges are rounded. Again, this is possible but difficult to achieve with a pen.



The red shows evidence of thinning in certain areas, such as on the right-hand side at the bottom of the M. The classic thick/thin line of a cut pen is clearly evident here. Similar evidence can be seen on f. 106r on the left-hand side on the downswing of the curl. It also shows some streaky/uneven parts among the knotwork.

It looks like a pen was used to drag the red colorant along rather than using a wider brush to fill it in. These results were replicated by experimentation with a reed pen.

<sup>65</sup> MS. Auct. D.1.12. (Second quarter of the 9th century, Switzerland). Bodleian Library. <https://digital.bodleian.ox.ac.uk/objects/3b3c8a05-c87e-4296-be62-8da07baeb0c4/surfaces/32bc496f-a89f-4e3f-b4a7-17d1e669a62e/>

## Brushstrokes

As mentioned above, it is possible to see brush strokes in some manuscripts. One particularly good example can be found in the Codex Amiatinus, dated 688 - 716 AD England.<sup>66</sup> In f. 13, as shown, brush strokes are evident in the purple area. The darker areas are indicative of overlapping brush strokes. A careful examination shows some evidence of individual bristles. Based on the brush strokes, the shape appears to be slightly rounded at the top, similar to the modern filbert. The same results could likely be achieved with a round pointed brush, as the bristles flatten out when they're pressed against the medium, creating the same rounded-off shape. In further support of the purple being applied with a brush, an artist by the name of Inge Kanold attempted to recreate purple parchment using murex snails. She applied the purple to a piece of wet parchment and noted that 'the brush marks were clearly visible, reminiscent of illuminated manuscripts'.<sup>67</sup> This appears to be the same phenomena visible in the Codex Amiatinus.



<sup>66</sup> Codex Amiatinus. (716 AD). British Library. <https://www.bl.uk/collection-items/codex-amiatinus>

<sup>67</sup> Biggam, C. P. (2006). Knowledge of whelk dyes and pigments in Anglo-Saxon England. Anglo-Saxon England, 35. <https://www.jstor.org/stable/44510945>

## Manuscript Content Analysis

Manuscript content analysis provided the largest corpus of evidence for tool usage. Specifically, there are many depictions of pens, both reed and quill, before and after the 850 AD to 950 AD timeframe, but few were found in that bubble. Before further analysis can be completed, there are significant limitations which must be addressed.

### Limitations

Just as the clothing is not representative of contemporary fashions, it cannot be assumed that the instruments which are depicted in the manuscripts are representative of contemporary tools of the era. The vast majority of manuscript images containing writing implements are depictions of the Evangelists. There is a formulaic nature to them: each portrait contains some combination of scribe, text carrier (book), and pen.<sup>68</sup> This formula is not a coincidence: the copying of manuscripts was held in high esteem, and could be considered an extension and expression of religious practice.<sup>69</sup> It is possible to trace the spread of certain “fashionable” manuscript styles from scriptoria to scriptoria.<sup>70</sup> In some cases, this spread can go on over the course of centuries, which further distorts the usefulness of the depictions for accuracy.<sup>71</sup>

It is also important to note that identifying the object is just as important for the purposes of this research as identifying the existence of the object. Dr. Randall Rosenfeld speaks to this topic, saying, “if every object in an illumination cannot be identified, and that convincingly, some doubt may be expressed as to whether we have the technical means to interpret that illumination.”<sup>72</sup> Accurately identifying tools is further complicated by the art style in use; the Insular style is highly stylized and not terribly realistic. Some manuscripts are worse than others, and of course, Deer is on the “worse” end of the spectrum. In fact, in a modern analysis of the art of Deer, the artist is accused of being “puzzled” by the “conventions of human anatomy” and is accused of sticking to

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<sup>68</sup> Rosenfeld, R. (1991). The Prophets and Apostles Write: Images and the Medieval Understanding of Writing. *Scripta Mediterranea*, XII-XIII.

<https://scripta.journals.yorku.ca/index.php/scripta/article/download/38998/35380/46888>

<sup>69</sup> Horn, W., & Born, E. (1980). Heaven on Earth: The Plan of St. Gall. *The Wilson Quarterly*, 4. <https://www.jstor.org/stable/40255780?seq=1>

<sup>70</sup> Rosenbaum, E. (1956). The Evangelist Portraits of the Ada School and Their Models. *The Art Bulletin*, 38(2). <https://www.jstor.org/stable/3047643?seq=8>

<sup>71</sup> Rosenfeld, R. (2004). *Tres digiti scribunt: a Typology of Late-Antique & Medieval Pen Grips*. Ashgate Publishing.

[https://www.academia.edu/36354421/Tres\\_digiti\\_scribunt\\_a\\_Typology\\_of\\_Late\\_Antique\\_and\\_Medieval\\_Pen\\_Grips\\_2004\\_pdf](https://www.academia.edu/36354421/Tres_digiti_scribunt_a_Typology_of_Late_Antique_and_Medieval_Pen_Grips_2004_pdf)

<sup>72</sup> Rosenfeld, R. (1991). The Prophets and Apostles Write: Images and the Medieval Understanding of Writing. *Scripta Mediterranea*, XII-XIII.

“awkward” designs.<sup>73</sup> This further calls into question the feasibility of identifying tools accurately when it is occasionally difficult to identify which part of a human being is depicted, such as f. 16v of *Deer*, where the body appears to consist entirely of a series of loops.<sup>74</sup>

## Advantages

Despite all that, there are reasons to believe that some of the manuscript tool images may actually depict, with some reliability, contemporary instrument usage. One great support comes from an analysis of pen grips, e.g. how the scribes are holding their pens in the illuminations. The author notes that, while the overall format of the illuminations follows a formula, the images “show more variation in pen grip.”<sup>75</sup> This could possibly be a result of the illuminator using their own hand as a reference for the image. It then follows that the image of the tool may also have been adjusted to fit the scribe’s base of knowledge or to match whatever tool they were using.

Images of paintbrushes start showing up just before 1000 AD. When they are in hand, some are Evangelist portraits, but others appear to be self-portraits of the scribes themselves. One particular notable miniature showcases the scribe scowling as he writes giant letters with a very tiny pen.<sup>76</sup> There are other examples where a tool that appears to be a paint brush is laying on a table<sup>77</sup> along with other scribal tools. These images may, in fact, be representative of the tools in use at the time. While they are too late for *Deer*, they follow closely afterwards and can provide additional context.

## Manuscript Content

Please see Appendix A for the chart, organized by approximate year.

There are 80 pieces of information, representing over 40 hours of combing through manuscripts and other reference sources. There are 46 illuminations, 10 pieces of correspondence, instruction, or other written communication, and 24 physical objects. Some sources appear more than once as they reference two different object types. The year was calculated by taking the average of the earliest and latest date. The distance

<sup>73</sup> Geddes, J. (1999). The art of the Book of *Deer*. Proceedings of the Society of Antiquaries of Scotland, 128. <http://journals.socantscot.org/index.php/psas/article/view/10019/9986>

<sup>74</sup> University of Cambridge. (n.d.). Book of *Deer* MS li.6.32. Cambridge Digital Library. <https://cudl.lib.cam.ac.uk/view/MS-II-00006-00032/3>

<sup>75</sup> Rosenfeld, R. (2004). *Tres digiti scribunt: a Typology of Late-Antique & Medieval Pen Grips*. Ashgate Publishing. [https://www.academia.edu/36354421/Tres\\_digiti\\_scribunt\\_a\\_Typology\\_of\\_Late\\_Antique\\_and\\_Medieval\\_Pen\\_Grips\\_2004\\_pdf](https://www.academia.edu/36354421/Tres_digiti_scribunt_a_Typology_of_Late_Antique_and_Medieval_Pen_Grips_2004_pdf)

<sup>76</sup> MS 3, BZ.1962.35 [Dumbarton Oaks]. (1084).

<https://www.doaks.org/resources/manuscripts-in-the-byzantine-collection/psalter-and-new-testament>

<sup>77</sup> Miniscule 585 [Byzantine]. (975 AD to 1005AD). <https://pinakes.irht.cnrs.fr/notices/cote/43326/>

from Aberdeen (production site of Deer) was calculated by direct path via Google Maps. The distances are approximate.

### Identification Categories

In the course of this project, it was indeed difficult to interpret every tool in the image, as well as to distinguish between different kinds of pens. I found it necessary to create a framework to help identify objects to ensure internal consistency. I used the shape, color, and context to determine the object. A brief example can be found in Appendix B.

The categories used are:

Cosmetic brush	Paintbrush, unknown bristle
Ferrule, metal	Pen, ambiguous
Paintbrush, ambiguous	Pen, metal
Paintbrush, animal bristle	Pen, quill
Paintbrush, feather bristle	Pen, reed
Paintbrush, plant bristle	Writing tool, ambiguous

### Scattergram Analysis

Utilizing the data collected in Appendix A, I created three "scattergram" charts using an app called RawGraphs.io. I input the data from the spreadsheet, using the approximate age of the evidence as the X-axis and the approximate distance from Aberdeen as the Y-axis.

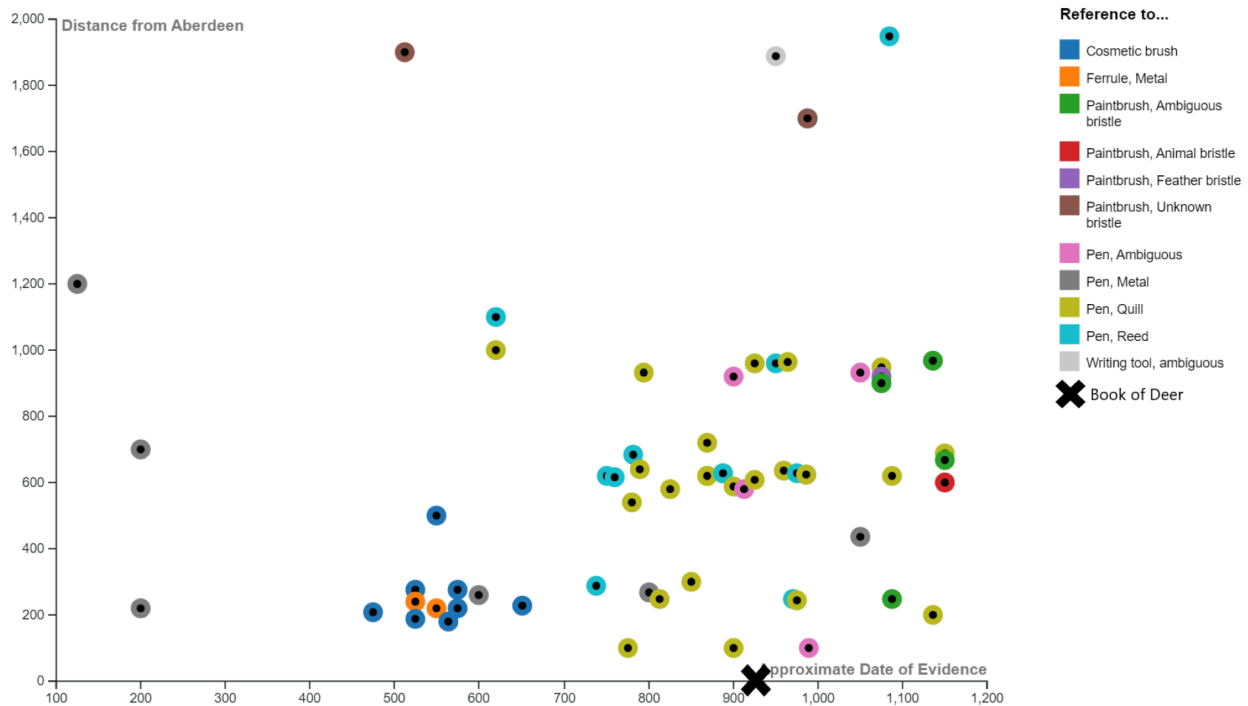
The Book of Deer is marked geotemporally with an X.

These show visually which instruments were in use closest to Deer. While the spreadsheet has all the same information, it doesn't necessarily show the whole picture - literally. By separating out the information into different categories, additional information can be gleaned.

All data within 2000 miles of Aberdeen which is dated between 125AD and 1150AD

I chose to exclude evidence that pre-dated the Fall of the Roman Empire and evidence located more than 2000 miles from Aberdeen. While trade routes certainly existed during this time between the Byzantine and Hiberno-Saxon cultures, art style crossover decreased with distance between the cultures. Removing the outliers had an added benefit of making the chart more intelligible.

The cluster of cosmetic brushes shows up in the early Anglo-Saxon period (the dark blue icon). While it is temporally several hundred years earlier than Deer, it is geographically one of the closest data clusters. The other notable cluster is the quills which all appear around 600 miles away in Switzerland and Germany. This is not surprising as there were two high-volume monasteries (with Irish monks, even!) in St. Gall and Reichnau, respectively, during that time frame.



All data within 2000 miles of Aberdeen dated between 125AD and 1150AD





## Conclusion

### Areas of Future Activity

More investigation into paintbrushes could potentially be completed by high-resolution analysis of manuscripts to identify brush strokes, brush shapes, and potential materials. I believe that further exploration of the relationship between the scriptoria in the British Isles and their contemporaries on the mainland could provide further insight into possible available materials. The two cultures had significant contact as evidenced by the corpus of Insular art and written documents which were produced in Switzerland and Germany. I presume that this is, in part, a result of the Norse raids on the British Isles and the resulting flight of the monks, but it seems like there is more going on there.

### Final Thoughts

At the beginning, I stated that my working theory at the start of this project was that brushes made of some sort of animal hair bristle and quill pens were used to create the Book of Deer manuscript. As the project progressed, I lost my faith in the existence of paintbrushes during this time period and began questioning everything I've ever known about manuscript production. By the end, I think I talked myself back into knowing how paintbrushes were created, coming full circle.

Much to my chagrin, this body of research does not provide any definitive answers, nor do I think any will be forthcoming with future scholarship. The necessary information just doesn't appear to exist, or, at least, has not yet been identified. That being said, the research does support that certain instruments were likely in use (quills, reed-pens) and that other instruments could plausibly be in use (paintbrushes). Greater detail regarding material composition or construction is not available for the time period in question. I hope this research helps an intrepid and diligent recreationist make more informed tool use choices as they explore the arts of calligraphy and illumination.

With that, this ship has reached its port. Though I have typed this with ten fingers, my body aches and so do my hands. Say a prayer for me.

*Written by an anonymous scribe in an 11c Colophon in Ælfric's Old English De temporibus anni*

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\_search&sa=X&ved=2ahUKEwjpxPmphvH9AhV2IUQIHf1yDK4Q6AF6BAgCEAM  
#v=onepage&q=anglo%20saxon%20cosmetic%20brushes&f=false

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# Appendix A

☰ Writing Instruments by date

## Appendix B

Object Type	Identifying Features	Source	Image
Quill, with feathers	The object is straight but it has lines which are indicative of feathers.	Bodleian MS D.2.16, 900 - France	
Quill, no feathers	The object is long, conical, and curved. There are no feathers. It is identified as a quill.	Codex Eyckensis, 750-800 - Ireland	

<p>Quills, with and without feathers</p>	<p>There are two pens in the image. The quill in hand has feathers and the quill in the inkpot does not. Both appear to have a curve and therefore, both are identified as quills.</p>	<p>Ebbo Gospels, 817 to 834 - France</p>	
<p>Reed-pen</p>	<p>The object is straight and even with a brown tone. The tip is black and shows a curve. This could be a paintbrush but since it is being used to write, it is identified as a reed-pen.</p>	<p>Miniscule 585, 975 to 1000 - Byzantine</p>	
<p>Reed-pen</p>	<p>This object is straight and brown. The cut of the pen nib is clearly visible. This is identified as a reed-pen. However, it is possible that this could also be a metal pen as it is in gold in the manuscript.</p>	<p>Codex Wittekindeus, 970 to 980 - Germany</p>	

<p>Reed-pen</p>	<p>This object is yellow and has a distinct tip. It could be a paintbrush but is being dipped into an inkwell.* The context identifies this as a reed-pen.</p> <p>*I found a reference to horns being used to hold paint. If the tip were a color other than ink black, it would be a stronger argument for being a paintbrush or at least an ambiguous writing utensil.</p>	<p>Vespasian Psalter, 700 to 800 - Switzerland</p>	
<p>Pen, ambiguous</p>	<p>This object is straight and white. It could be a quill or a reed-pen.</p>	<p>Walters W.1, 900 to 925 - France</p>	
<p>Pen, ambiguous</p>	<p>This object is brown and straight. It is unclear if it is conical which creates ambiguity in identification. There is no other context to inform what kind of pen this is.</p>	<p>Prudentius Carmina, 890 to 910 - Austria</p>	