



# Digital Representations of the Material:

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## The Medieval Manuscript in the Digital Medium

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## Introduction

This thesis will investigate the way in which the medieval manuscript is transformed into a digital object. More specifically, what will be examined is which physical aspects of the medieval manuscript can be, and which aspects perhaps cannot be, represented in a digital environment. This investigation is based on the idea that there is a contradiction that occurs, and a clash that has to be overcome, when a physical object is transformed into a digital object. This is because digital representation is largely visual in nature, based on the two representational categories of image and text. In the case of the medieval manuscript, this kind of visual representation can usually be seen online in the form of web pages displaying digitized medieval manuscripts.<sup>1</sup> The following discussion will show that this transformation from physical to digital has some problematic consequences: while for some physical aspects of the manuscript this kind of alternative visual representation may be sufficient, other aspects relating to the physicality of the manuscript will inevitably be lost. However, the digital representation can also gain some added functionalities, largely because of the nature and the unique affordances of the digital medium. The discussion which follows will therefore offer insight into both the losses and the gains of the digital representation of the medieval manuscript.

This thesis will employ the definition of visual representation previously established by Mitchell, wherein representation in visual terms is divided into the two main categories of image and text.<sup>2</sup> Mitchell's definition is actually very useful in the context of the medieval manuscript in digital form, which is after all most often displayed on websites composed of images and text. It is therefore these two categories that will be evaluated in the following chapters. (To clarify, the term "text" from now on will be used only in the context of textual information *about* an object, and textual description *of* an object, and not – as is perhaps easy to assume in the context of books – the contents of a medieval manuscript.) Chapter 1 will first consider some of the issues of codicology in a digital age, as well as the terminology of digital representation in a more

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<sup>1</sup> Throughout this discussion, terms such as "the digital medium" and "a digital environment" are used specifically to refer to an online environment based on websites. This thesis does not take into account audio or video components, as the "digital manuscript" (as it is presented on E-Codices) is largely composed of images and text – the two representational categories that will be the focus of this thesis.

<sup>2</sup> "Word and image" is the name of a commonplace distinction between types of representation, a shorthand way of dividing, mapping, and organizing the field of representation." W.J.T. Mitchell, *Picture Theory* (The University of Chicago Press Ltd.; London 1994), p. 3.

general sense. The “representational capacities” of images and text will then be discussed in Chapter 2 and Chapter 3 respectively, considering both analogue and digital representations, always coming back to the medieval manuscript and its representation. Finally, Chapter 4 will present a case study of a digital medieval manuscript collection, in order to support the more theoretical discussions of the preceding chapters with a concrete example.

The motivation behind this thesis lies in the current prominence of digitization practice in the cultural heritage sector, and the magnitude of the change which occurs when a physical heritage object is transformed into a digital object. The relationship between the physical manuscript and its digital counterpart is very complex, and arguably has not been discussed as much as it would deserve. Over 20,000 medieval manuscripts have been digitized so far, and are currently being displayed online on hundreds of websites and different kinds of software applications.<sup>3</sup> This number is expected to keep growing in the upcoming years, as the digitization boom shows no signs of relenting, and new plans to digitize more manuscripts are constantly being drafted by numerous institutions.<sup>4</sup> When considering the digitization of cultural heritage artefacts, the relationship between the physical artefact and its digital counterpart is of the highest importance. Being aware of the consequences of this transformation is important, because historical artefacts (such as medieval manuscripts) are most often digitized not only for the purpose of creating a conservation double for the original artefact, but also in order to create an easily accessible substitute for use.<sup>5</sup> In other words, the user of a digital medieval manuscript is often expected to be able to consult the digital representation of the manuscript in a similar way that they would consult the historical original. It is for this reason that a thorough analysis of the representative capacities of the digital medium is required: by asking questions about the ramifications of digital representation of physical objects, we can then perhaps critically evaluate the consequences of choosing to consult those representations, rather than consulting the physical artefacts themselves.

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<sup>3</sup> Digitized Medieval Manuscripts Maps, <https://digitizedmedievalmanuscripts.org/> (6 December 2015).

<sup>4</sup> C. Flüeler, ‘Digital Manuscripts as Critical Edition’, transcript of a lecture presented at the 50th International Congress on Medieval Studies in Kalamazoo, MI, USA in May 2015, <http://schoenberginstitute.org/2015/06/30/digital-manuscripts-as-critical-edition/> (6 December 2015), n. pag.

<sup>5</sup> N. Kaiser, *Diffusion of Innovations in Special Collections Libraries: The Motivations behind Adoption of Digitization*, A Master's paper for the M.S. in L.S. degree (April 2000), <https://cdr.lib.unc.edu/record/uuid:d04609d7-ee92-4919-9e72-ad5f75f5575c> (6 December 2015), p. 19.

## Chapter 1

### Codicology in the Digital Age

The intellectual horizons of the Middle Ages have to be imagined and reconstructed from the artefacts which survive.<sup>6</sup>

The medieval manuscript is an object of interest in several areas of humanities scholarship, for instance in the fields of textual criticism, medieval literature, and palaeography. However, as the focus of this thesis is the manuscript as a physical object, the area that will be the specific focus of our present discussion is codicology; the area of manuscript study specifically concerned with the physical make-up and construction of the manuscript. The aspects of the manuscript codex that codicology is interested in include the materials the manuscript is made of, its binding, quire construction, and other physical aspects such as pricking, ruling, and the structure of the text (for instance the amount of lines and columns on a page).<sup>7</sup> The physical differences between manuscripts – materials, size, decorations, layout – vary according to the time period and geographical area in which the specific manuscript was created, and the prevalent culture and book-making trends in that specific cultural context. It is because of this uniqueness and variability that medieval manuscripts can be considered some of the most important surviving witnesses to their specific historical circumstances – circumstances of which in fact very little explicit information survives, and therefore often need the study of physical artefacts to come to light.<sup>8</sup> Codicology can therefore not only discover more about the medieval manuscript that is the object of its study, but also about the society in which the manuscript was created and subsequently used.

The so-called “digital age” has transformed humanities research in many ways, and it has done

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<sup>6</sup> P. F. Ganz, *The role of the book in Medieval culture : proceedings of the Oxford international symposium 26 September - 1 October 1982* (Oxford, 1982), p. 7.

<sup>7</sup> R. Clemens and T. Graham, *Introduction to manuscript studies* (Ithaca, New York: Cornell university press, 2007), p. 264.

<sup>8</sup> E. Kwakkel, ‘The Cultural Dynamics of Medieval Book Production,’ in *Manuscripten en miniaturen: Studies aangeboden aan Anne S. Korteweg bij haar afscheid van de Koninklijke Bibliotheek*, J. Biemans et al. (Ed.), *Bijdragen voor de geschiedenis van de Nederlandse boekhandel*, 8 (Zutphen: Walburg Pers, 2007), p. 245.

just that also to the study of the medieval manuscript. Physical facsimiles have been used in the study of the medieval manuscript ever since the nineteenth century, when the emergence of the photographic copy for the first time implied that the manuscript could be investigated using a representation of the manuscript, rather than having to consult the physical manuscript itself. However, recent years have seen an increasingly rapid development of digital technologies, and the specific affordances of the digital medium have made the digital online environment a completely novel way of presenting and disseminating the medieval manuscript. Out of the different specific fields which concern themselves with the manuscript, the “digital revolution” has arguably had the greatest impact on codicology. For instance, it could be argued that for palaeography, the tools afforded by the digital medium are more obviously helpful: when analysing historical script forms, what one needs is a clear image of the script that is being studied, and for this purpose, a digital photograph may in fact be quite sufficient. However, codicology is concerned with the physicality of the medieval manuscript, and for this a “flat” photograph may not be sufficient. The digital medium is, as already stated, inherently visual: it is this discrepancy between the physical and the visual that introduces the possibility that digital representations of physical objects will inevitably be lacking in some crucial respects. This is why the field of codicology especially warrants an investigation into the issues of digital representation: not only because there are complications which occur when something physical is translated into digital format, but also because the accurate representation of the physical aspects of the manuscript is absolutely necessary for the success of codicological research.

### **1.1. The Terms of Digital Representation**

When discussing the digital representation of any physical object, the first thing that should be clarified is what is meant by the term “representation” in a digital context. As discussed above, digitizing cultural heritage objects is a widely practiced activity in the heritage sector, and the general concept of having a “digital version” of an object can easily be taken for granted. Words such as “representation” and “replica” are used in this context without necessarily considering what these terms signify. The concept of digital representation, being the key concept in this discussion, therefore requires clarification. When it comes to this issue of representation, different writers on the topic prescribe different meanings to the word. For instance, Stinson uses the word “representation” to refer to any kind of digital image of a physical (heritage) artefact. Where Stinson makes a separation is between what he calls the “primary representation” (i.e. a

digital image of an object) and the “secondary information” in textual form, relating to that digital image. Secondary information in this instance includes textual descriptions and metadata relating to both the digital object and the physical original.<sup>9</sup> Below is how Oxford dictionaries has defined the term:

representation [...]

2. The description or portrayal of someone or something in a particular way:

the representation of women in newspapers

Origin

Late Middle English (in the sense 'image, likeness'): from Old French *representation* or Latin *repraesentatio*(n-), from *repraesentare* 'bring before, exhibit' (see *represent*).<sup>10</sup>

It is possibly pleasing to combine the definition of the Oxford Dictionaries with Stinson’s definition, the latter separating between “primary” representation (image) and “secondary” information (text). This is because the Oxford Dictionaries’ definition – like Stinton’s – allows for representation to happen in many formats: “the description or portrayal” can refer to both images of objects, as well as textual description of objects. Allowing representation to encompass both images and text in fact gives us a practical framework for discussing many digital objects, as online platforms for digitized heritage materials are most often composed of both images and text – images displaying a photographic representation of an object, and texts supplying a representation by description. Secondly, the origin of the word residing in “image” and “likeness” quite accurately describes what digital objects are: they essentially exhibit a likeness of objects, a likeness in a different medium to be specific – in the form of images and texts. When considering digital objects displayed online, it is often overlooked just how fundamental this change in format is, and how different in nature the digital “likeness” is. I would also argue that this drastic change in format also separates “representation” from “replica”:

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<sup>9</sup> T. Stinson, ‘Codicological Descriptions in the Digital Age’, *Kodikologie und Paläographie im digitalen Zeitalter/Codicology and Palaeography in the Digital Age*, M. Rehbein et. Al. (Ed.), (Norderstedt: Books on Demand 2009), p. 39.

<sup>10</sup> Oxford Dictionaries, ‘Representation’, <http://www.oxforddictionaries.com/definition/english/representation> (6 December 2015).

replica [...]

An exact copy or model of something, especially one on a smaller scale:

a replica of the Empire State Building<sup>11</sup>

While it may be supposed that a digital object could also be considered “a model” of a physical object, there are differences in use when it comes to these terms. For instance Terras, when discussing digitized manuscripts, makes a separation between the two terms: “representation” signifying a modified image of an object, and “replica” referring to an exact digital (photographic) copy of an object.<sup>12</sup> For example, images acquired using multispectral imaging techniques could in this instance be considered modified representations, because these images usually reveal non-visible aspects of artefacts; i.e. aspects that would be invisible to the human observer without the aid of specific technologies. A replica would in this context be a digital image of a physical object “as it is”, or rather, portrayed as faithfully as possible to what the physical object would look like when confronted by a human observer.

The divide between “representation” and “replica” in this case may indeed be a practical separation more than anything, based on envisioned use. A replica of an object is supposedly meant to be consulted in place of its physical original (for instance in the absence of the original), and should therefore be as visually similar as possible to the original object. However, I would argue that converting a physical object to a digital object is such a fundamental change in the nature of the object itself that the term “replica” ceases to be useful altogether. With so many aspects of physical objects more or less impossible to “replicate” in a digital environment, the word “representation” remains more useful. The digital object, created to accurately portray a physical object, represents it; it acts in its stead, rather than attempting to be the same thing. Furthermore, the word “representation” carries with it the possible agendas or methods behind it: as discussed by Mitchell, representation links “the visual and verbal disciplines within the field of their differences [...] connecting them with issues of knowledge [...] ethics [...] and power”.<sup>13</sup> In other words, the word also reminds us that representation always stems from certain goals and

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<sup>11</sup> Oxford Dictionaries, ‘Replica’, <http://www.oxforddictionaries.com/definition/english/replica> (6 December 2015).

<sup>12</sup> M. Terras, ‘Artefacts and Errors: Acknowledging Issues of Representation in the Digital Imaging of Ancient Texts’, *Kodikologie und Paläographie im digitalen Zeitalter 2/Codicology and Palaeography in the Digital Age 2*, ed. by F. Fischer, C. Fritze & G. Vogeler (Norderstedt: Books on Demand 2010), p. 58.

<sup>13</sup> W.J.T. Mitchell, *Picture Theory* (The University of Chicago Press Ltd.; London 1994) p. 6.



objectives of its creator. The subjective nature of representation should also be kept in mind, because the goals that lie behind this conversion from physical to digital also have an effect on the digital object that is the result of this process.

Finally, when discussing digital images of objects, Terras brings to bear to the discussion the classic concepts of mimesis (representation of aspects of the real world in a different medium) and ekphrasis (describing “real-world”-objects and phenomena through words or text).<sup>14</sup> Both of these concepts can be used in describing the nature of digital objects quite well: because of its programmable nature, all digital information is in a way textual information. Underneath the digital screen, even images are written codes comprised of ones and zeroes, and the text underneath only transforms into what the user sees with his or her eyes through the application of specific software and hardware.<sup>15</sup> Because of the transformative process that occurs when a physical object is represented mimetically and ekphrastically in the digital medium, I would argue that the digitized physical object can best be defined as a visual representation in the form of images (“primary representation”) and text (“secondary information”), a collaboration in which the image offers a visual likeness of the object, and text completes the visual act of representation by description. However, I would also maintain that the textual components of the digital object are by no means “secondary” when it comes to importance: textual information is highly important for a satisfactory representation of a physical object in a digital environment, as several aspects of the physical object can only be represented via text. The importance of text will be discussed further in Chapter 3.

The reason why issues of vocabulary need to be discussed is that when asking questions of digital representation of physical objects, we need to be clear about what representation in a digital context entails. The power that language has in how we grasp different concepts is undeniable: to understand the consequences of transforming a physical object into a digital one, we need to clarify the terms with which we speak of this transformation. Language, as we have seen, can allow us to extend the concept of digital representation for instance to include textual descriptions – therefore expanding our ideas of what can be considered representation in digital form. After being clear on the terms of representation, we can perhaps more successfully confront the issues that surface in the translation from physical to digital. In other words, while facing the “clash” of something physical being confined into a visual environment, we can also more fruitfully investigate the compromises involved in this process, and also see the possible advantages of those compromises.

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<sup>14</sup> M. Terras, ‘Artefacts and Errors’, p. 58.

<sup>15</sup> M. Terras, ‘Artefacts and Errors’, p. 45.

## 1.2. The Relationship of Image and Text

[...] the interaction of pictures and texts is constitutive of representation as such: all media are mixed media, and all representations are heterogenous; there are no ‘purely’ visual or verbal arts [...]<sup>16</sup>

As our current interest is the representation of physical objects in the form of images and text, the complexity of the relationship between these two categories deserves to be emphasized. As has been discussed above, the field of visual representation can be divided into text and image; or as articulated by Foucault, the sayable and the seeable.<sup>17</sup> To simplify a very complex topic, it could be said that images are meant to be read as resemblances of objects, and as visual signs or signifiers. Conversely, textual information – such as a word – is meant to be read as a phonetic signifier to be read and/or vocalised, either out loud or in the mind of the reader.<sup>18</sup> These two categories are connected to each other on a very fundamental level, and separating between the two is nigh impossible: deriving meaning from images requires language, and evoking a specific image in the mind requires an accurate visual resemblance.<sup>19</sup> In fact, the words “description” and “representation” are arguably interchangeable: the Oxford Dictionaries, as seen above, also includes description in its definition of representation. Furthermore, historically the Latin term ‘descriptio’ could refer to a drawn, written or oral description. Importantly, the prefix of the word ‘de-’ also denotes the description *of* something, highlighting its representative function.<sup>20</sup> In our current context of digital representation, this historical meaning of ‘descriptio’ is very useful, insofar as it supports the idea that representation can in fact include both textual and visual “descriptions”. Both categories of communication are used on one hand to describe objects, and on the other hand to create an image of something in a person’s imagination. Importantly, both

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<sup>16</sup> W.J.T. Mitchell, ‘Word and Image’, p. 5.

<sup>17</sup> W.J.T. Mitchell, ‘Word and Image’, p. 51.

<sup>18</sup> While description by language in a larger sense does include spoken language, this thesis disregards spoken language (and audio in general) – as the focus of this discussion is visual representation only. W.J.T. Mitchell, ‘Word and Image’, p. 55.

<sup>19</sup> In fact, it may be more useful to view this separation as a dialectic trope rather than a clear-cut division, and to explore the relationship between the two rather than trying to separate between them. Mitchell, W.J.T., ‘Word and Image’, p. 54.

<sup>20</sup> B. Cassin et. al. (Ed.), *Dictionary of Untranslatables: A Philosophical Lexicon* (Princeton University Press, February 9, 2014), p. 204.

categories are also indelibly linked in the representation of the medieval manuscript in a digital environment, where the two work together in representing the manuscript in digital form.

When attempting to evaluate the merits of text and image as representative entities, the values assigned to the two are not completely straightforward. Traditionally, verbal communication has been seen as the more analytical way of communicating information, the use of language requiring more agency and intellect than the use of other visual signifiers. Communication through imagery or symbols has in turn been seen as the less active, and even unintellectual option for communicating information.<sup>21</sup> However, when it comes to art objects and other cultural artefacts, verbal description has often been deemed the less effective mode of representation: when the artefact is the key, the verbal can then be seen as “comparing poorly” with the thing itself that it attempts to describe (largely because of the interpretability of language, making the evocation of a specific image a very subjective exercise).<sup>22</sup> However, in the context of representation and communicating information, the two have been traditionally seen as categories that work together in a complementary way. When wanting to convey information, it is usually considered most rhetorically effective to explain one’s argument in language, and support that explanation with imagery, and vice versa. Additionally, it has from some of the earliest theories of memory been argued that visual signifiers actually help the brain to inscribe to memory the message it has received “in language”.<sup>23</sup> It seems that the human brain is wired to prefer text alongside images, and vice versa: this may in fact be seen as good news for a digital object such as the digital manuscript, usually displayed as such a combination of image and text. The next two chapters will now go on to consider the two categories of image and text in more detail, and the ways in which images and text can represent physical objects.

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<sup>21</sup> W.J.T. Mitchell, ‘Word and Image’, p. 60.

<sup>22</sup> B. Cassin et. al. (Ed.), *Dictionary of Untranslatables: A Philosophical Lexicon*, p. 204.

<sup>23</sup> “Theories of rhetoric routinely appeal to the model of word/image conjunctions to define the relation between argument and evidence, precept and example, verbum (word) and res (thing, substance). Effective rhetoric is characteristically defined as a two-pronged strategy of verbal/visual persuasion, showing while it tells, illustrating its claims with powerful examples, making the listener see and not merely hear the orator's point.” W.J.T. Mitchell, ‘Word and Image’, p. 54.

## Chapter 2

### The Object and the Image

We live in a culture of images, a society of the spectacle, a world of semblances and simulacra.<sup>24</sup>

The purpose of this chapter is to investigate the ways in which images represent objects, and the consequences of creating a photographic representation of a physical object. This discussion is essential to our considerations regarding the digital medieval manuscript in an online environment, because the digital manuscript is most often displayed as a set of digital photographs of manuscript pages, accompanied by textual information (which will be the topic of Chapter 3). What is instrumental to the discussion is the issue of the photographic reproduction - an issue related to all representations of historical artefacts - and its relationship with the artefact it represents. The issue of the reproduction is tied to the concept of the “aura” of historical artefacts, as discussed by Benjamin, and whether this unique historical sensation of an object can be conveyed in a representation in any format. What is also applicable to the issue of photographic representations of objects is the issue of haptics, or the significance of touch in how human beings physically interact with objects. While these two issues are applicable to all forms of representations, they are arguably further complicated when considered in the context of the digital medium, which as an environment has its own specific complications. However, there are also many things that can be achieved with digital imagery that could not be achieved with analogue representations (i.e. paper photographs), or indeed with the physical manuscript itself. Some of these additional affordances will therefore also be discussed in this chapter. The question this chapter will therefore try to answer is: when a physical object is being represented in the form of an image, what kinds of compromises have to be made in the process, and what kinds of additional possibilities are also introduced?

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<sup>24</sup> W. J. T. Mitchell, *Picture Theory* (The University of Chicago Press Ltd.; London 1994), p. 5.

## 2.1. The Limits of Images: Originals and Representations

[...]while art historians ostensibly study *things*, in practice, they often look at *images* of things more than at the things themselves.<sup>25</sup>

Photographic reproductions have been used in representation and analysis of art and heritage objects ever since the nineteenth century, and the role of the replica with regards to what it represents has also been contested ever since.<sup>26</sup> (It should be noted that while Benjamin's theory originally considered what he called "replicas" of objects, the term that will be employed from here onwards is "representation", according to the terms discussed in Chapter 1). It has for instance been a worry of some theorists that a photograph representing an artefact may not be sufficient as a representation, especially when portraying a 3D-object such as a sculpture - or indeed, for example, a medieval manuscript. With all photography, there are some practical issues involved: for instance, choosing a sufficiently representative angle for photographing a non-flat object, and making sure that there are no distortions in the resulting representation (for instance in terms of colour, or distortions caused by lenses of photography equipment).<sup>27</sup> However, an issue also arises regarding what Benjamin originally termed the "aura" of the historical artefact. Linked to "the history which [the object] has experienced", the historical aura is a unique presence in time and space that each historical object automatically carries with it.<sup>28</sup> According to Benjamin, the ramifications of this aura are such that reproducing an object in any format severs the object from its aura, therefore making it insufficient as a representation.<sup>29</sup> The copy even threatens the authority and integrity of the original by endeavouring to replace and "become" the original object. In this sense, Benjamin viewed a representation of an object not only as insufficient, but even as a threatening "dissent force".<sup>30</sup> Baudrillard, similarly, went as far as to worry that a life-like representation could take the place of the original object, and in doing so

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<sup>25</sup> Italics as they are in the original quote. G.A. Johnson, '(Un)richtige Augnahme': Renaissance Sculpture and the Visual Historiography of Art History', *Art History* 36, Issue 1 2012, p. 13.

<sup>26</sup> G. A. Johnson, '(Un)richtige Augnahme', p. 13.

<sup>27</sup> M. Terras, 'Artefacts and Errors', p. 45.

<sup>28</sup> W. Benjamin, 'The Work of Art in the Age of Mechanical Reproduction', p. 218.

<sup>29</sup> "[...] that which withers in the age of mechanical reproduction is the aura of the work of art." W. Benjamin, 'The Work of Art in the Age of Mechanical Reproduction', p. 219.

<sup>30</sup> F. Cameron, 'Beyond the Cult of the Replicant: Museums and Historical Digital Objects – Traditional Concerns, New Discourses', *Theorizing Digital Cultural Heritage, A Critical Discourse*, eds. F. Cameron & S. Kenderdine (Cambridge MA: MIT Press 2007), p. 51.

would challenge its importance and authority.<sup>31</sup>

While Benjamin was discussing the issue of the historical aura in the context of traditional mechanical copies (mainly film photography), digital reproductions arguably constitute an even more complex category because of the “programmable nature” of the digital format. Unlike a paper photograph, the digital photograph is not fixed in form, but the screen on which a digital photograph is viewed is in constant flux - possibly affected by many kinds of variables and errors.<sup>32</sup> By Benjamin’s standards, whereby any representation is insufficient in representing (and even threatening towards) a physical artefact, the digital object is surely even more unstable: not only does the digital photograph offer even less physical tangibility than for instance a paper photograph, but the image displayed on a digital screen changes very easily. While the hardware trappings of plastic and metal remain, a specific combination of hardware and software is still needed in order to bring the representation before the eyes of the user. A paper photograph, on the other hand, is viewable without any special equipment, and if conserved appropriately can remain intact for hundreds of years.

While a digital photograph may offer less tangibility than its paper equivalent, it also isolates the original object from its own historical continuum by more or less freezing the physical object to an arbitrary point in time as a digital image. The unique aura of a historical artefact, while philosophically connected to the artefact on all levels, is also in a sense visible through the marks, scrapes and other signs of wear and tear left on the object by previous users. When the original manuscript is placed in holding and the representation is consulted instead, this historical continuum affected by the aging process of the artefact is in effect suspended, as well as isolated from all subsequent users. When consulting a digital representation of the manuscript, the physical manuscript’s own aging process is practically replaced by the aging process of the digital manuscript; a process not resulting in worn leather and stained parchment, but issues such as bit rot and technological obsolescence.<sup>33</sup> Therefore the representation cuts off the historical continuum with regards to the object itself, as well as the person consulting the object, in the sense that the user is not able to contribute to this long history of interaction. The different aging processes of the physical artefact and its digital representation highlight the fundamental difference between the object and its representation, and further support Benjamin’s idea of the importance of the unique history that is inherent in any historical artefact.

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<sup>31</sup> F. Cameron, ‘Beyond the Cult of the Replicant’, p. 51.

<sup>32</sup> M. Nolan, ‘Medieval Habit, Modern Sensation: Reading Manuscripts in the Digital Age’, *The Chaucer Review* 47, no. 4 (2013), p. 466.

<sup>33</sup> J. E. B. Burns, ‘Digital Facsimiles and the Modern Viewer: Medieval Manuscripts and Archival Practice in the Age of New Media’, *Art Documentation: Journal of the Art Libraries Society of North America*, Vol. 33, No. 2 (Fall 2014), p. 159. Published by: The University of Chicago Press on behalf of the Art Libraries Society of North America URL: <http://www.jstor.org/stable/10.1086/678515> (26 November 26 2015).

## 2.2. Materiality, Touch, and The Implications of Haptics

Although new habits form very quickly, digital reading lacks the near-global commonality of holding a book in the hands, feeling the sharp or subtle edges of the pages, hearing the rustle of each leaf as it is turned, smelling the scents of paper and ink, even tasting the book by touching tongue to finger and finger to page and back again.<sup>34</sup>

A major aspect of any physical object that is very difficult to represent in digital form is what has been termed the materiality, or the phenomenology, of the object – for instance the weight and the size of the object, and even its smell and its sound.<sup>35</sup> The materiality of the physical object also ties into the issue of haptics (as expressed by Nolan in the quote above), which refers to the ramifications of physically handling an object in your hands, as opposed to for example viewing an object on a digital screen. What it means to lose the haptic element of an object is an issue that we have had to confront increasingly in recent years, especially in the context of e-readers and other receptacles of intangible text not tied to its platform. The issue has been discussed especially with regards to books by authors like Manguel and Nolan: the former described the importance of “the form as much as the content”<sup>36</sup> in the reading process, and the latter stating that the process of deriving meaning from text “begins with the movements of the reading body in relation to the page”.<sup>37</sup> In other words, we engage with the physical book not just by looking at it, but also by physically interacting with it. In the context of reading, the platform for the text is as crucial as the text itself.<sup>38</sup> With a physical entity that can be handled, viewed from all sides and leafed through - always grasping its structure as a whole - the understanding of a text has been found to be much greater than when reading digital text.<sup>39</sup> Conversely, the absence of text from the physical space of the reader (when scrolling down a website, or “turning the page” of a digital manuscript) has consequences for how we can grasp the text and its receptacle as an entity. In

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<sup>34</sup> M. Nolan, ‘Medieval Habit, Modern Sensation’, p. 465.

<sup>35</sup> P. A. Stokes, ‘Teaching Manuscripts in the Digital Age’, *Kodikologie und Paläographie im digitalen Zeitalter 2/Codicology and Palaeography in the Digital Age 2*, eds. F. Fischer, C. Fritze & G. Vogeler (Norderstedt: Books on Demand 2010), p. 237.

<sup>36</sup> A. Manguel, *A History of Reading* (Toronto: Alfred A. Knopf, 1996 ), p. 125.

<sup>37</sup> M. Nolan, ‘Medieval Habit, Modern Sensation’, p. 467.

<sup>38</sup> “It is on the page that the body meets the mind.” M. Nolan, ‘Medieval Habit, Modern Sensation’, p. 467.

<sup>39</sup> A. Manguel, ‘Hypertext fiction reading: haptics and immersion’, *Journal of Research in Reading* Volume 31, Issue 4 (November 2008), pp. 404–419.

this respect favouring only one sense – sight – is in many ways insufficient when it comes to interaction with not only text, but the book as an object in a larger sense.

With regards to the medieval manuscript, the loss of the haptic element when consulting a digital manuscript can also arguably inhibit the modern user from understanding what the reading experience of the medieval reader was really like. Firstly, reducing the manuscript to a flat image disproportionately privileges the visual over other senses, when in fact in the Middle Ages touch was seen as just as valuable – if not even more so – than sight.<sup>40</sup> Physical interaction was highly important for the medieval reader, and reading was inherently a haptic experience. Traces of this importance of physicality remain visible on the manuscript pages to this day, for instance in the form of fingerprints, blood and tears stains, and even saliva from kisses planted on holy texts.<sup>41</sup> While some of these marks are theoretically possible to be viewed in a digital photograph, they still remain removed from the bodily space of the modern reader – therefore inhibiting the modern reader from interacting with the book similarly to the medieval reader. The modern reader of the digital manuscript is also denied many physical clues connected to the act of reading itself: the weight and size of the book signalling for instance value, genre and level of concentration required, and the weight of the book on both sides signalling the reader's progress through the work.<sup>42</sup> Some visual clues can arguably be shown satisfactorily in a digital image, but other clues related to the physicality of a book are mostly lost in translation from the physical to the digital.

There is also a worthwhile point to be made about the experience of the modern reader of medieval manuscripts when the act of reading is framed in the context of, for example, a special collections reading room. The interaction between the reader and the medieval manuscript is complicated by these formal surroundings in which the manuscript is presented. Echard, while pondering her experiences in special collections libraries, comes to the conclusion that the conventions surrounding the consultation of medieval manuscripts in special collections reading rooms is in itself enough to completely change the way the reader experiences the manuscript. Most significantly, in a special collections environment the manuscript's historical continuum is also interrupted: the rules of these reading rooms generally allow only very minimal touching, and (understandably) prohibit leaving any marks on the pages of the manuscript. As discussed above, a part of the “objectness” of the manuscript resides not only in its individual aging process, but

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<sup>40</sup> P. A. Stokes, 'Teaching Manuscripts in the Digital Age', *Kodikologie und Paläographie im digitalen Zeitalter 2/Codicology and Palaeography in the Digital Age 2*, F. Fischer et. al. (Ed.), (Norderstedt: Books on Demand 2010), p. 237.

<sup>41</sup> K. Rudy, "Dirty Books: Quantifying Patterns of Use in Medieval Manuscripts Using a Densitometer," *Journal of Historians of Netherlandish Art* 2 (2010), <http://www.jhna.org/index.php/past-issues/volume-2-issue-1-2/129-dirty-books> (6 December 2015), n. pag.

<sup>42</sup> M. Nolan, 'Medieval Habit, Modern Sensation', p. 466.



also in the history of touch that the object has accumulated during its lifetime. The prohibition of touch in this environment has repercussions for the manuscript itself (interrupting its history of interaction), and also for the reader: Echard remarks that in a particular instance she was not allowed to touch the manuscript at all, effectively turning an in-situ consultation of the manuscript into a purely visual experience.<sup>43</sup> In other words, it should be remembered that the digital environment is indeed not the only environment in which there is heavy mediation between the book and its reader – and that framing the manuscript in these formal surroundings also has a profound effect on how the reader may interact with the manuscript. Importantly, the way the manuscript is framed in an institutional context also affects how the reader perceives the historical significance of the manuscript – which in turn is arguably partly responsible for the creation of the manuscript’s historical “aura”.

The problems that arise with the loss of the historical aura and the haptic elements of objects - often discussed in relation to art objects and books – converge in the medieval manuscript. Each medieval manuscript is a unique historical object and a witness to its particular time period and circumstances of production, and when the user is left to interact with a representation in any format, the historical sensation created by this unique history of the manuscript is effectively lost - as are the more phenomenological aspects of the manuscript, such as its size, and even its sound and its smell. According to Benjamin, when the historical artefact is replicated in any sense, the object is severed from its historical aura, as well as its physical qualities. At least as far as Benjamin is concerned, a representation of an object in any format cannot therefore truly offer the kind of experience as being in the presence of the physical original can. This physicality is arguably even more absent in the case of the digital representation, as the digital screen offers even less tangibility than for example a paper photograph. The digital image, in effect, remains an unstable entity on a flat screen.

However, it is also important to remain critical of this aura, or at least be aware of the reasons why the concept has perhaps come to exist in the first place. As argued by Cameron, the concept of the aura of the historical object could not exist at all without the reproduction of the object existing first.<sup>44</sup> In other words, the representation of the artefact is required in order to expose the “magical” or “aural” qualities that the user may personally feel when being faced with the original artefact. In fact, the object and its representation are so interlinked that the merits of one cannot ultimately be evaluated without also considering the other. Finally, when considering the physical object itself, the institutional framework that the object is placed in also influences the

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<sup>43</sup> S. Echard, ‘House Arrest: Modern Archives, Medieval Manuscripts’, *Journal of Medieval and Early Modern Studies* 30, no. 2 (Spring 2000), p. 189.

<sup>44</sup> F. Cameron, ‘Beyond the Cult of the Replicant’, p. 57.

way we view the object, and how we view the historical sensation around it.<sup>45</sup> For instance, when the manuscript is placed in a special collections reading room, it gets “museumified”: in such a location, the manuscript is set in a context in which its value is made abundantly clear by the very institution which holds it.<sup>46</sup> If viewed in a different context altogether, it is possible that not only would the value of the object be less evident to the user, but perhaps the historical aura might also remain absent – a consequence that would in turn affect how the user perceives the object’s historical “aura” as well.

### 2.3. Image: Digital Affordances and Added Functionalities

[...] the term affordance refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used.<sup>47</sup>

While there are several issues related to photographic representations, there are also benefits, especially when it comes to usability. As already discussed above, scholars rely increasingly on digital resources in many areas of humanities research. Digitization remains the word of the day, and historical collections of artefacts are being digitized by libraries and museums in speeds that show no sign of slowing down. Digitization is carried out not only for preservation purposes, but also for reasons of access: online visibility is increasingly viewed as important, and invisibility threatens institutions who do not boast high-quality digital collections online. Universal access and easy shareability are among the things that heritage institutions should be aspiring towards if they are to keep up with the rate of the progress. When it comes to use, the affordances of the digital medium further imply that everyone should be able to access, use, and reuse collections that previously were locked up inside libraries and special collections of elite institutions. This has brought about a change not only in the kinds of groups that have traditionally been associated with having interest in historical artefacts, but also the attitudes that people have for the artefacts and collections themselves.

The digitizing of artefacts has many advantages that are well known in the academic

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<sup>45</sup> J.E.B. Burns, ‘Digital Facsimiles and the Modern Viewer: Medieval Manuscripts and Archival Practice in the Age of New Media’, *Art Documentation: Journal of the Art Libraries Society of North America*, Vol. 33, No. 2 (Fall 2014), <http://www.jstor.org/stable/10.1086/678515>, pp. 148-167.

<sup>46</sup> F. Cameron, ‘Beyond the Cult of the Replicant’, p. 54.

<sup>47</sup> D.A. Norman, *The Design of Everyday Things* (New York: Doubleday, 2002), p. 9.

community and beyond, and many of these advantages also apply specifically to the benefits of digital images. Hirtle, for example, has summarized the advantages of creating digital representations of objects in three main points: 1) the increased use of the material when compared to that of the physical original; 2) the creation of new types of research possibilities using digital surrogates; and 3) the creation of new user groups outside a traditional, purely academic context.<sup>48</sup> At its most ideal, digital resources facilitate easy and democratic access to heritage materials, which can be enjoyed, shared, and reused by anyone - regardless of their financial, social, or geographic situation. In digital form, anyone can enjoy medieval manuscripts, regardless of the desired level of involvement in the area: at its most casual, social media platforms can offer entertaining fragments of digitized historical artefacts, for instance in the form of humorous posts on historical Twitter-accounts.

A major benefit of digital images is indeed the fact that they can be duplicated and shared free of charge, regardless of time and place. When it comes to the digital manuscript, the consequences of this include the possibility of grouping images of manuscript pages together that could not be viewed next to each other otherwise, in order to critically examine and compare them. This kind of overcoming of geography with regards to the manuscript facilitates international research, and allows new connections to be made between objects: a simple activity like comparing manuscripts from a vast array of digital libraries around the world in the comfort of your office would have been impossible with earlier non-digital photographic representations. The classic microfilm viewer, which for so long was the standard second choice when not being able to access the original material, could not have achieved this kind of functionality in any conceivable way. In image quality, ease of access, cost-effectiveness and re-usability, digital images seem to come out on top of the game in comparison with other alternatives.<sup>49</sup>

The several positive aspects of photographic representations have indeed been realised long before the digital medium came into play. Even Benjamin, who was a critic of the representation with regards to the object it represents, admitted that the ability to show more than the human eye could see was a highly positive benefit of the photographic representation - for instance the simple functionality of “enlargement or slow motion”.<sup>50</sup> Indeed zooming in, mentioned by Benjamin as early as 1936, is still a useful asset for the user of the digital medieval manuscript.

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<sup>48</sup> P.B. Hirtle, ‘The Impact of Digitization on Special Collections in Libraries,’ *Libraries and Culture* 1 (Winter 2002), pp. 43-44.

<sup>49</sup> Although in favour of microfilm, it also is a physical object that is arguably less complex to preserve than a digital file. However issues of digital preservation are unfortunately outside the scope of this thesis. C. W. Griffin, ‘Digital Imaging: Looking Toward the Future of Manuscript Research,’ *Currents in Biblical Research* October 2006 vol. 5 no. 1 p. 58.

<sup>50</sup> W. Benjamin, ‘The Work of Art in the Age of Mechanical Reproduction,’ *Modern Art And Modernism: A Critical Anthology*, F. Frascina et. al. (Ed.), (Westview Press 1982), p. 218.

There are details that the scholar of the medieval book might not be able to see on the physical page, but through digital imagery these details can be made visible: for instance zooming in on a digital manuscript, or by changing contrast and colour balance levels on simple image editing programs. Editing the digital images of the manuscript can also be used to an extent in the field of palaeography to reveal detail of unclear or faded text. This is a simple but a very functional change, which alongside the possibility of easy comparison facilitates many basic research tasks of the codicologist and the palaeographer.

As has been shown in the discussion above, there are several problems that have to be faced when discussing any kind of visual representation of physical objects. The goal of representing all aspects of physical objects in a digital image is more or less philosophically unattainable, because of the very nature of the change in medium that the digitized object has to go through. When captured in a digital photograph, the object is turned into a flat one-sided view of itself – making physical inspection and movement around the object impossible. The restrictions of the digital medium are such that all non-visual aspects are largely impossible to replicate in a way that would offer a similar experience to that of being confronted with an original physical artefact – especially according to Benjamin’s theory of the unique historical aura that all artefacts possess. While Benjamin’s theories pre-date the digital medium, digital objects arguably constitute an even more complex category: instead of existing in our own physical space, a digital object requires software and hardware in order to appear before our eyes as a visual spectacle. However, digital images can arguably go beyond representation, offering new functionalities: while lacking in some respects, the digital image also offers possibilities that the original cannot offer. Perhaps these added functionalities – access, shareability, and possibility for functional comparison – can in their part make up for some of the losses of digital representation.

## Chapter 3

### The Object and Text

The relation of word and image seems exactly analogous to the relation of words and objects. The imagetext reinscribes, within the worlds of visual and verbal representation, the shifting relations of names and things [...].<sup>51</sup>

This chapter will consider the ways in which text can represent objects, and the kinds of functionalities that text may have with regards to the object it represents. As has been discussed above, text can be considered “the other half” of visual representation: at its simplest, text can represent artefacts by means of description (i.e. in language), while images in turn can represent object by offering a visual likeness. This chapter will discuss some general issues that relate to textual description, both with regards to physical and digital objects. Attention will also be drawn to catalogue descriptions, which exemplify the important role of textual description specifically in the field of codicology. Catalogue descriptions of medieval manuscripts will be considered regarding the physical manuscript, as well as the manuscript in digital form. Finally, the added functionalities afforded to text by the digital medium will also be discussed, as well as the functional purposes that text may serve specifically with regards to the digital object. By considering all of these different meanings and functionalities of text, this chapter will show that text is crucial to the digital representation of the medieval manuscript in several different ways.

As discussed above, the digital medium is fundamentally textual because of its programmable nature; or rather, everything that lies beyond a digital screen is made up of different programming codes, and therefore is arguably fundamentally textual. However, rather than focusing on this aspect of textuality in the digital medium, in the present chapter text will be discussed as it is understood as descriptions and metadata relating to objects. In other words, text will be understood as a mode of representation that represents an object via description, rather than via an image or a visual resemblance (such as a digital photograph). All of the issues related to textual

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<sup>51</sup> W. J. T. Mitchell, *Picture Theory* (The University of Chicago Press Ltd.; London 1994), p. 241.

description will be discussed in order to investigate the value of text and textual description in the representation of the medieval manuscript in a digital environment.

### 3.1. The Limits of Language

As text is used in the context of the digital manuscript mostly to describe various aspects of the manuscript, the limits of description by language warrant some exploration here. Some of the setbacks discussed with regards also apply to text: when using language to describe physical objects, the end result will still remain a physical entity constrained by something visual.<sup>52</sup> Therefore, when representing physical objects by utilizing text, the end result will also lack in aspects of physicality such as haptics, historical aura, and the prospect of a physical interaction between the object and its user. Many physical aspects of the artefact – such as size, weight, and internal structure – are all aspects that are most likely to require textual description to come across fully in a digital representation, because these aspects cannot necessarily be represented using only a photograph. For example, the user of a digital manuscript cannot feel the weight of the manuscript in their hands, or see the manuscript in physical relation to their own bodies, but they can read the dimensions of the book given in textual form alongside the digital image.<sup>53</sup> In other words, when consulting a digital object rather than a physical one, the physical information about the object has to be determined not based on physical inspection, but based on “the embedded and stored data” relating to that object.<sup>54</sup> The role of text in the act of representation is therefore essential, because the role of text in representation is unique to text: without it, many aspects of the object could not be represented at all.

However, as textual description is in essence language, an issue also arises regarding the subjectivity and reliability of language. In addition to simple human error, the verbal description of any historical artefact is arguably always subjective, and therefore problematic: it should not be supposed, as worded by Treharne, that “truth” can be “ascertained through the combination of a physical image and a scholarly apparatus”.<sup>55</sup> At its simplest, a major cause for the unpredictability

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<sup>52</sup> Note: as stated above, the topic of this thesis is *visual* representation, and therefore what is excluded here is spoken language.

<sup>53</sup> T. Stinson, ‘Codicological Descriptions in the Digital Age’, *Kodikologie und Paläographie im digitalen Zeitalter/Codicology and Palaeography in the Digital Age*, M. Rehbein et. al. (Ed.), (Norderstedt: Books on Demand 2009), p. 39.

<sup>54</sup> J. E. B. Burns, ‘Digital Facsimiles and the Modern Viewer’, p. 158.

<sup>55</sup> E. M. Treharne, ‘The Good, the Bad, the Ugly: Old English Manuscripts and their physical description’, *The Genesis of Books: Studies in the Scribal Culture of Medieval England in Honour of A.N. Doane* (Brepols Publishers, January 2011), p. 268.

of verbal description is that different people can interpret language in an almost infinite number of ways – just as there are numerous ways of describing objects in the first place. For example, if a physical description of a manuscript states that something on the parchment page is “red”, which shade of red should the reader imagine? If parchment is described as “poor”, how should the reader imagine this description of quality, especially in the absence of the manuscript (or an image of the manuscript)?<sup>56</sup> This ambiguity of descriptive words is a threat to the reliability of textual description, and therefore to the reliability of the digital object as a whole. Judgements of value can also introduce ambiguity into the act of description: Treharne uses the example of describing scribal hands, and the problematics of referring for example to a script with terms such as “well-formed” or “beautiful”.<sup>57</sup> Making subjective judgements of value is always problematic, and especially in a scholarly context, it is problematic to describe things as either “good” or “bad”. Especially in the case of digitized cultural heritage, evoking the correct image in the mind of the reader is especially important, and this evocation is complicated by vague terminology. Representation should always rely on an unbiased verbal description, regardless of the presence of digital imagery – but especially in the absence of it.

### 3.2. Before Digital: Catalogue Descriptions

It has been established so far that text, as much as the image, has a crucial part to play in the representation of objects. It has also been seen that when left on its own, text also lacks in certain respects (much like an image does, when severed from all textual context), and can also be considered problematic in terms of interpretation. However, textual description is relevant to our current topic not only as far as digital representation goes, but also specifically with regards to codicology: I refer here to descriptions of medieval manuscripts, most usually found in manuscript catalogues. Catalogues of course have an important functional purpose, mainly to list the existence of a book in a certain collection, and to guide the user of the catalogue to the direction of the right book. However, the catalogue also has an important descriptive purpose, which is to “bring an absent book before a reader’s eyes” by means of physical description.<sup>58</sup> Descriptions of medieval manuscripts as a group in fact require highly varied descriptions –

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<sup>56</sup> “Parchment mostly defective and of poor quality”, St. Gallen, Stiftsbibliothek, Cod. Sang. 213, Palimpsest Manuscript: “Divinae institutiones” by Lucius Caelius Firmianus Lactantius; the Dialogs of Gregory the Great etc. <http://www.e-codices.unifr.ch/en/list/one/csg/0213> (14 December 2015). Description: <http://www.e-codices.unifr.ch/en/description/csg/0213/Lowe> (14 December 2015), n. pag.

<sup>57</sup> E. M. Treharne, ‘The Good, the Bad, the Ugly’, p. 269.

<sup>58</sup> F. Bowers, *Principles of Bibliographical Description* (New York: Russell & Russell, 1962), p. vii.

arguably even more so than those of printed books – because each manuscript is a unique, handmade object. The variations within manuscripts have to be recorded in descriptions in a meticulous and standardized way, in order to not only “bring a book before the readers eyes”, but to assure the reader that the book which is being sought is indeed the right one. The description of the manuscript therefore has to be detailed, clear, and standardized in order to be useful.

When considering physical catalogues that describe physical objects, catalogues have usually been utilized for several purposes. The most general categories may be characterized as the following: people who need to find information about an object *without* consulting it, people who are looking for information about the object *prior* to consulting it, and finally requiring said information *during* consultation, in order to better understand the object in front of them.<sup>59</sup> The first category of users requires very precise descriptions of the physical object, especially in the absence of images, when the verbal description has to represent the object in its entirety. The latter category of users will especially benefit of information about the object that cannot be necessarily be revealed by simply looking at the object itself. Contextual information, for example the historical circumstances of the manuscript’s production and the name of the scribe who executed the work are not necessarily self-evident - especially for users with a lower level of expertise in the area. The latter group can also be considered to include the digital manuscript and its users: the textual description that is a part of the digital manuscript can after all be compared to a catalogue description, with the distinction that this catalogue description is accompanied by a visual resemblance of the manuscript that is being described. This brings us to the functionalities of text in the digital medium, which will now be discussed in the section below.

### 3.3. Text: Digital Affordances and Added Functionalities

A major aspect of manuscript description that remains more or less unchanged in the digital medium is the need for a detailed physical description of the manuscript, and the need to provide standardized terminology and information about the physical aspects of the manuscript for the user.<sup>60</sup> However, as stated above, in the context of the digital manuscript this physical description is combined with digital imagery of the manuscript. Stinson in fact argues that physical

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<sup>59</sup> T. Stinson, ‘Codicological Descriptions in the Digital Age’, *Kodikologie und Paläographie im digitalen Zeitalter/Codicology and Palaeography in the Digital Age*, M. Rehbein et. al. (Ed.), (Norderstedt: Books on Demand 2009), p. 35.

<sup>60</sup> T. Stinson, ‘Codicological Descriptions in the Digital Age’, p. 39.



description becomes more or less unnecessary in the presence of digital imagery. For example, the user of the digital manuscript does not necessarily need to read that a given manuscript has two columns of text, because they can attest to this fact by looking at the digital photograph of the manuscript page.<sup>61</sup> However, contrary to this, I maintain that textual description remains highly useful in a digital environment, just as it does with regards to the physical manuscript: textual description provides not only standardised descriptions and specific codicological terms for the benefit of the user, but text also acts as a checker for possible errors or distortions in the digital images themselves. Therefore, text maintains some of the same functionalities in the digital medium, but also gains new functionalities that relate specifically to the digital medium and the manuscript as a digital object.

Much like some of the setbacks of digital images, some affordances of digital imagery also apply to digital text; for instance the possibility of sharing, editing, and reusing digital online resources. With catalogues and texts in general, the digital medium facilitates editing: for instance, physical catalogues cannot be edited once printed. They can of course be annotated by their individual owners, and they can be reprinted in new editions, but once a single physical catalogue is out, individual catalogues cannot (usually) be edited by the institution that printed them. Digital catalogues can in turn be updated whenever needed, as well as shared between users regardless of time or geographical location (another affordance that also applies to digital images). Digital catalogues can also be made to relate directly to digital collections of manuscripts: the ability to move straight from a catalogue record to a digital manuscript is arguably the most striking and unique affordance of the digital manuscript, not replicable in the physical world in terms of efficiency. This is a major practical affordance of the digital medieval manuscript that will be discussed more towards the end of this thesis.

It has already been shown that textual description, when describing physical features of an object, has a unique role in the act of visual representation. Additionally, textual information has a very specific role regarding the *functionality* of the digital manuscript, a role which digital imagery alone could not fulfil. For instance, all codicological information about the manuscript can in digital form be turned into a database of codicological data. In the digital medium, this kind of functionality has invaluable uses when it comes to searching and finding items in a collection: when codicological data (such as a list of physical characteristics of a manuscript) is embedded with XML-markup, it is possible to search a digital manuscript collection based on any physical characteristic.<sup>62</sup> The textual components of the digital manuscript also include information specifically relating to the digital object, rather than the manuscript that is being represented; for

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<sup>61</sup> T. Stinson, 'Codicological Descriptions in the Digital Age', p. 40.

<sup>62</sup> T. Stinson, 'Codicological Descriptions in the Digital Age', p. 35.

instance aspects such as file size and file type.<sup>63</sup> In the case of E-Codices (the case study presented in Chapter 4), metadata pertaining specifically to the digital object include for instance a DOI (Digital Object Identifier), Online since-date, and information about image rights.<sup>64</sup> Digital data of this nature makes not only searching for information more efficient, but metadata about the digital object further allows for interoperability, reusing, and sharing of resources. Therefore digital textual information is also essential to the functionality of the digital manuscript.

Another important functionality of text in the context of the digital manuscript is that it acts as a kind of “intellectual surrogate” for the digital image: not only because it lends the digital image its functionality, but also because it can connect the digital images to any amount of contextual information.<sup>65</sup> In fact, there is theoretically no end to the information that can be conveyed about an object in the form of text, as long as there is something relevant left to say. In addition to supplying the viewer with terms of description, the digital manuscript can supply the user with historical and contextual information, such as the provenance of the manuscript, and references to other sources. Faced with just the bare digital image, all of this information would remain hidden, and the image would remain in isolation from its context. Additionally, when put into digital textual form, this contextual information (which is after all a part of any object) becomes purposefully structured, specifically selected to highlight certain aspects of the object. As argued by Flüeler, this act can transform the digital manuscript into a critical edition.<sup>66</sup> The purpose of the critical edition is to present a text in an informative and accessible way and highlighting certain aspects of it, so that the text will be as useful as possible for those who wish to consult it. While the digital manuscript endeavours to represent a physical object in its entirety (rather than just the text within the manuscript), the same principle applies: being a purposefully created and assembled whole of its parts, the digital manuscript can be viewed as an edition, rather than a straightforward, unbiased representation. In terms of the reliability, this could indeed be a negative recognition: acknowledging the subjectivity of the digital manuscript reminds us that the digital manuscript is in fact a biased piece of work, created by a biased human agent. However, while this is an aspect that the user of the digital manuscript should be aware of, the critical, textual and contextual components can still lend the digital manuscript its scholarly value – and therefore make it even more useful for its user.

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<sup>63</sup> T. Stinson, ‘Codicological Descriptions in the Digital Age’, p. 35.

<sup>64</sup> St. Gallen, Stiftsbibliothek, Cod. Sang. 213, Palimpsest Manuscript: "Divinae institutiones" by Lucius Caecilius Firmianus Lactantius; the Dialogs of Gregory the Great etc. <http://www.e-codices.unifr.ch/en/list/one/csg/0213> (14 December 2015).

<sup>65</sup> D.V. Pitti, ‘Designing Sustainable Projects and Publications’, *A Companion to Digital Humanities*, S. Schreibman et al. (Ed.), (Malden, MA: Blackwell, 2004), <http://www.digitalhumanities.org/companion/> (6 December 2015), n. pag.

<sup>66</sup> C. Flüeler, ‘Digital Manuscripts as Critical Edition’, n. pag.

The purpose of this chapter has been to explore the nature of textual description, and the way that it can represent physical and digital objects. This has been discussed in the context of the medieval manuscript, with regards to codicological descriptions and the way those descriptions change when moving from the analogue to the digital. Added functionalities appear especially in the digital medium, where textual description of the manuscript functions almost like a searchable catalogue entry attached to digital imagery of the manuscript. In fact, in the context of the digital medieval manuscript, text has many functionalities that make it indispensable: not only does text make the digital object functional by means of metadata, but it also lends the digital manuscript its intellectual component by supplying structured information – and of course, by linking the digital representation of the object to the physical object that is being represented in the first place. Considering this intellectual function of text, as well as the fact that the digital manuscript is a carefully chosen entity made up of different representational devices, it could even be argued that the digital manuscript functions as a critical edition of the physical manuscript – designed to present the physical manuscript in a certain pre-meditated way.<sup>67</sup>

As text and image work together in the field of digital representation, the representative possibilities of text have to be accounted for in order to properly evaluate the success of the digital medieval manuscript. As has been seen in this chapter, the textual components that accompany the visual representations of objects in the digital medium are indispensable in many ways, and should therefore be considered a part of the digital object as a whole. In the context of the material aspects of objects, text is in fact often the only way to convey certain features to the reader. There are some inevitable compromises involved in this visual representation of physicality; mainly the loss of haptic qualities and the absence of bodily interaction, and the inevitable replacement of these losses with photographic and textual representations. However, as this chapter has shown, text has many more added functionalities with regards to the digital manuscript, in the light of which this compromise can perhaps be borne quite happily. Perhaps to make up for what textual description can't convey, text can help in making the digital object usable, searchable, and even in lending the digital object its critical value.

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<sup>67</sup>C. Flüeler, 'Digital Manuscripts as Critical Edition', n. pag.

## Chapter 4

### **Digital Manuscripts on E-Codices**

The preceding chapters have considered some theoretical aspects of digital representation, and the consequences of representing physical objects through images and text. In digital form, both image and text offer many useful functionalities with regards to the digital object, but there are also many issues involved in the act of representation with regards to both categories. This chapter will now present a case study of a digital manuscript collection, in order to support the theoretical discussions of the preceding chapters. The example chosen for this purpose is the website E-Codices, a prominent online collection of digitized medieval manuscripts from a variety of collections in Swiss libraries.<sup>68</sup> First there will be a discussion on the basic physical aspects of medieval manuscripts that are relevant to codicological research, or in other words, the physical aspects that together make up the entity that is the medieval manuscript. It will then be shown how these different physical aspects of the manuscript are represented on E-Codices using images and text. Through this case study, this chapter will show exactly how a physical manuscript is transformed into digital form, and ponder on the different ways that image and text can represent different physical features of the manuscript.

#### **4.1. The Medieval Manuscript: From Parts to the Whole**

As discussed in Chapter 1, codicology as a field of study concerns itself with the physical make-up of the book, and the book as a physical historical object. Therefore, what can be considered the codicological aspects of the medieval manuscript can also work as good basic guidelines for our present purposes - those purposes being understanding which physical aspects make up the manuscript codex, and how these physical aspects are represented through the digital manuscript. All physical aspects of the physical medieval manuscript should always be conveyed in some way through its digital counterpart, because it is these physical aspects of the manuscript that can tell

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<sup>68</sup> E-Codices: Virtual Manuscript Library of Switzerland <http://www.e-codices.unifr.ch/en> (6 December 2015).

the user what kind of manuscript they have in front of them, and in what time period and in which cultural context it was created. The observable physical features of the manuscript listed below roughly follow the stages of medieval book production, based on the structure laid out by Clemens and Graham.<sup>69</sup> I have also added a final category for dimensions, as the size of the manuscript is undeniably an important aspect of the manuscript as a physical object, and of how the size of the manuscript relates to for example its intended use.

- The Page: Type and Quality
- Design: Layout, Pricking, Ruling
- Ink: Script and Decoration
- Structure: Quires and Binding
- Dimensions

The representation of physical aspects of the manuscript in these five categories will be discussed in this order, first with regards to the digital images, and then with regards to digital text. Textual information, as has been discussed, can also be considered a part of the digital object as a whole, and the “other side” of visual representation. Text can exclusively describe the physical object, but it can also supply almost endless amounts of contextual information, as well as lend the digital object its functionality. However, the discussion that follows will specifically consider physical descriptions of the manuscript, as the focus of this chapter is specifically the manuscript as a physical object. On a similar note, the issue of phenomenology will also be revisited in this chapter, and how the phenomenological aspects can (and perhaps cannot) remain present in a digital representation of the medieval manuscript.

## 4.2. A Case Study in Digital Representation: E-Codices

The case study chosen for this chapter is the collection of digital manuscripts on the website E-Codices.<sup>70</sup> This collection currently displays 1404 medieval (and some modern) manuscripts in digital form, bringing together 58 different public, church-owned, and private collections of

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<sup>69</sup> R. Clemens and T. Graham, *Introduction to manuscript studies* (Ithaca, New York: Cornell university press, 2007).

<sup>70</sup> E-Codices: Virtual Manuscript Library of Switzerland <http://www.e-codices.unifr.ch/en> (6 December 2015).

medieval manuscripts around Switzerland.<sup>71</sup> Why E-Codices was chosen as the example for this chapter is largely because of the quality of the site, and because of the reputation it enjoys because of its quality: E-Codices has been credited as a very useful resource for scholars, for instance because of its user-friendly design, meticulous metadata, and its efforts to reunite dispersed materials under one digital “roof”.<sup>72</sup> Another reason for choosing E-Codices is that it can also be considered representative of many similar digital manuscript collections: the basic structure of E-Codices is very similar to most digital manuscript collections online, wherein the digital manuscript is represented as a combination of digital images and accompanying textual and descriptive information. This chapter will now go on to consider the general layout of the website, after which it will be discussed how the website represents the observable physical aspects of the manuscript (as listed above) in the form of images and texts.

#### 4.2.1. Image and Text: The Layout of E-Codices

The general layout of the E-Codices website consists of a combination of images and different kinds of textual and descriptive information. Similarly to many other digital manuscript collections, the most conspicuous feature of E-Codices is a set of high-quality, full-colour digital photographs; or what Stinson might have called the “primary representations” of the physical object in its digital form.<sup>73</sup> The photographs are mainly views of the pages of a given manuscript taken directly from above – although there are often also alternative views, for instance of the spine and the fore-edge of the manuscript. The main page-viewer offers either an “open book”-view of two digital manuscript pages at a time (Fig. 1), or a view of a single page (Fig. 2).<sup>74</sup> The user can also view both sides of the same page at the same time (Fig. 3), or in other words, a recto-verso-view (rather than a verso-recto-view, mimicking an open book in terms of sequence). This is in fact a very functional aspect of the digital manuscript, since this would not be possible to do with a physical manuscript. The digital pages are “turned” using navigation buttons, which allow the turning of the pages either one or two pages at a time. In practice, the pages that are currently being displayed disappear for a fraction of a second, and after this, new pages appear: while the “turning” of physical pages is in a way mimicked, what remains clear is that the change

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<sup>71</sup> E-Codices, ‘History’, <http://www.e-codices.unifr.ch/en/about/history> (6 December 2015).

<sup>72</sup> F. Cusimano, ‘E-codices, Virtual Manuscript Library of Switzerland: A Case Analysis of Good Practices for Building a Virtual Library and Reunifying Dispersed Handwritten Collections’, *Procedia Computer Science Volume 38*, 2014, Pages 124–127, 10th Italian Research Conference on Digital Libraries, IRCDL 2014.

<sup>73</sup> T. Stinson, ‘Codicological Descriptions in the Digital Age’, *Kodikologie und Paläographie im digitalen Zeitalter/Codicology and Palaeography in the Digital Age*, M. Rehbein et. al. (Ed.), (Norderstedt: Books on Demand 2009), p. 39.

<sup>74</sup> Images to be found in the Appendix, pp. 49-60.

is actually a result of the software jumping from one digital image file to the next. Finally, E-Codices offers a comparison tool called Mirador, with which the user can choose any two manuscripts available on the site, and view them next to each other. This facilitates comparison between manuscripts, especially since Mirador also allows for zooming in on both pages at the same time – and does not require the user to download images, but allows the user to carry out comparisons within the structure of the website itself.

The digital imagery of E-Codices is always accompanied by textual description - or what may also be called “secondary information” pertaining to the “primary” digital object.<sup>75</sup> Before entering the page-viewer of E-Codices, the user encounters textual information in the form of a page providing a summary of a given manuscript, as well as an option to view an alternative description, sometimes in a different language (usually English or German). The summary page (Fig. 4) most often consists of basic information about the manuscript (location, shelf mark, title, short description). Once on the page viewer, the user can view textual information displayed in different tabs next to the images: basic information (name, shelf number, date, language, topic), quoting instructions for the digital manuscript (referencing and linking), information on copyright, and full description of the manuscript – including full physical description, full contents list, and bibliography. The textual information offered about a given manuscript changes from manuscript to manuscript, from very basic descriptions to more complex ones. This results in quite an unstable view of the digital manuscript as a digital object: descriptions with more detail offer a more comprehensive representation of a given manuscript, while the absence of description may lead to certain aspects of the manuscript remaining hidden from the user. Nevertheless, all of these textual components of the digital manuscript mostly amount to a wealth of information, some of which relate specifically to the physical aspects of the manuscript, while some relates more to the manuscript’s context and history. In addition to the images, what will be discussed in the section below are the descriptions that pertain to the physical aspects of the manuscript, because the specifically physical descriptions can be (as has been discussed above) considered a part of the digital representation of the medieval manuscript. What will be focused on is the collaboration between image and text in this act of representation.

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<sup>75</sup> T. Stinson, ‘Codicological Descriptions in the Digital Age’, p. 39.

#### 4.2.2. The Manuscript: Physical Aspects in Digital Form

##### *The Page: Material and Quality*

While the medieval manuscript was assembled of many parts, the perhaps most conspicuous physical aspect of the manuscript is the page on which the text was written. The most usual material that the pages of the manuscript were made of was parchment, which in turn was made of the skin of animals; most often calf, sheep, or goat. Determining which animal a sheet of parchment was made of can be determined for example by looking at the shape and patterns of visible hair follicles. The physical appearance of parchment can also tell a great deal about the way it was produced.<sup>76</sup> However, parchment type and quality could also be determined not only based on what the parchment looks like, but also based on what it feels like to the touch. It has in fact been argued that physical inspection of the parchment is required to make an accurate assessment of its type and quality. Aspects affecting this consideration include the feel of the parchment surface, for instance its coarseness or its fineness – as well as the way the parchment bends and moves. For instance, sheepskin can feel greasy on the surface, which is an effect that is problematic to represent visually.<sup>77</sup> Furthermore, parchment of a higher quality is also usually softer and smoother, which may also require an assessment of its rigidity.

While physical inspection may be beneficial for the identification of parchment, visual inspection can also give many clues to the parchment's origin and type – something that is also made possible by the digital manuscript. Indeed, visual inspection of parchment usually allows for at least a preliminary assessment of its type and quality: for instance, if parchment is of a consistent creamy colour without visible hair follicles or scarring, it is evidently of high quality (Fig. 5). The digital image also allows for the identification of the animal whose skin the parchment is made of, for instance based on patterns of hair follicles (Fig. 6). The digital manuscript also allows for an assessment of which side of the parchment is the flesh-side and which one is the hair-side, also based on the patterns visible. In fact, the digital manuscript arguably makes this easier than the physical manuscript: as already mentioned, the page viewer of E-Codices offers a “folio view” allowing the inspection of both sides of the same sheet of parchment, as well as the subsequent zooming in on the same area of the page on both sides, using the Mirador comparison tool (Fig. 7 and Fig. 8). Additionally, E-Codices includes photographs of the fore-edge of the manuscript, and therefore of the edges of the parchment pages (Fig. 9). This may help in determining the condition of the parchment, as it also allows the user to see the parchment's thickness and flatness. Therefore, while physical contact may offer a

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<sup>76</sup> R. Clemens and T. Graham, *Introduction to manuscript studies*, p. 9.

<sup>77</sup> R. Clemens and T. Graham, *Introduction to manuscript studies*, p. 9.



more reliable assessment of parchment type and quality, most often the digital image can offer enough visual clues to make at least a preliminary assessment without the user having to lay their hands on the parchment surface.

What has been referred to throughout this thesis is the collaboration between image and text. To repeat this idea in the context of E-Codices, it should be noted that for all of the “observable physical facts” about the medieval manuscript, the digital photograph has its equivalent in textual description. Therefore what the eye can see in the digital image, textual description will enumerate on using language. In the case of the material of the manuscript page – in addition to what is visible in the photographs – textual information is included regarding the writing support (often simply “parchment”). However, what changes from manuscript to manuscript is the description of the nature and the quality of the parchment: at times parchment may be described simply as either “poor” or “fine”.<sup>78</sup> While these descriptions serve as an indicator of quality for the user of the digital manuscript, they remain ultimately problematic, as discussed in Chapter 3: what terms such as “poor” or “fine” mean to a given user is subjective, and ultimately an exercise in imagination. However, the digital images can in this case offer further support and visual clues as to what exactly these terms are referring to in this context.

### *Layout, Pricking and Ruling*

After choosing and preparing the parchment page, the medieval scribe would first design the layout of the page. The design of the page would then be mapped out by pricking and ruling. What would be determined by ruling was the size of the text, how many columns the text would be in, how large the margins would be, and where the decorations would be situated. Pricking remains physically visible on the page as little round or slanted holes on the margins, and the ruling is usually evident if the scribe used something visible – like lead – to rule the pages.<sup>79</sup> Lead ruling, also called plummet, was used mainly from the eleventh century onwards, but earlier in the Middle Ages scribes in fact used dry-point ruling; or ruling that was made using pressure rather than a tool leaving a visible mark. In the fourteenth to fifteenth centuries, ink was also sometimes used in the ruling of pages. Type of ruling is therefore another physical feature of the manuscript that can help to place a manuscript in a certain historical context.

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<sup>78</sup> “Parchment mostly defective and of poor quality”, St. Gallen, Stiftsbibliothek, Cod. Sang. 213, Palimpsest Manuscript: "Divinae institutiones" by Lucius Caelius Firmianus Lactantius; the Dialogs of Gregory the Great etc. <http://www.e-codices.unifr.ch/en/list/one/csg/0213> (14 December 2015). Description: <http://www.e-codices.unifr.ch/en/description/csg/0213/Lowe> (14 December 2015), n. pag.

<sup>79</sup> R. Clemens and T. Graham, *Introduction to manuscript studies*, p. 15.

As stated above, digital photographs are “flat”, and are therefore good at representing flat aspects of objects that do not require views of several sides or further structural clarification about a 3D-object. Therefore the layout of the page can be represented in a photograph without great difficulty – although there may be an issue regarding size, especially if a ruler is not included next to the photograph (scale will be discussed further later in this chapter). Even though a feature such as a prick mark is a very small detail on the page, thorough investigation of it is still possible because of the high quality of the images and the efficient zooming ability (Fig. 10). The visibility of ruling in a digital image largely depends on the type of ruling used – lead or dry-point – and to an extent the quality of the manuscript in question. Lead ruling is as visible as any other detail on the page (Fig. 11), but for instance dry-point ruling is sometimes executed with such a light hand that it cannot be conveyed in a photograph (Fig. 12). However, in some examples the lines created by dry-point ruling remain visible because adequate pressure has been used by the scribe (Fig. 13). It is therefore possible to represent both pricking and ruling in a digital photograph. Problems may still occur because of other physical restrictions, such as the pricking being cut off in the process of trimming the pages during binding. In these cases physical inspection of the manuscript would be required to ascertain the nature of pricking, and whether pricking is present in both margins.<sup>80</sup>

As pricking and ruling are largely visual features on the page of the manuscript, the textual description again simply makes what is “seeable” into what is “sayable”.<sup>81</sup> In one example, the physical description of the layout reads: “Text is in two columns, 13,5 (6,5 + 0,5 + 6,5) x 20 cm. 21 lines ruled in dry-point. Columns framed with gold and red lines.”<sup>82</sup> This description is very valuable for the user of the digital manuscript, especially because of the indication of size that is offered by explicitly stating measurements in centimetres. Furthermore, in addition to serving as a summary of the manuscript and its features – saving time for the user of the digital manuscript – a physical description can also provide the user with terms of description they may not have (such as “dry-point”). Additionally, the description also works as a checker for visual distortions, for example with regards to colours: the digital image offers a visual likeness, and the verbal description supports the image by offering a functional structured description.<sup>83</sup> However,

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<sup>80</sup> The presence of pricking on both margins can in turn tell whether the quires that make up a manuscript were cut before or after pricking and ruling. Clemens, R., and T. Graham, *Introduction to manuscript studies*, p. 16.

<sup>81</sup> W.J.T. Mitchell, ‘Word and Image’, p. 51.

<sup>82</sup> Utopia, *armarium codicum bibliophilorum*, Cod. 2 (Codex Pandeli), Description by Henning Sievert, Universität Zürich (2009). English translation by Anne Marie Austenfeld, [http://www.e-codices.unifr.ch/en/description/utp/0002/\(6 December 2015\)](http://www.e-codices.unifr.ch/en/description/utp/0002/(6%20December%202015)).

<sup>83</sup> “Effective rhetoric is characteristically defined as a two-pronged strategy of verbal/visual persuasion, showing while it tells, illustrating its claims with powerful examples, making the listener see and not merely hear the orator's point.” W.J.T. Mitchell, ‘Word and Image’, p. 54.

colours are not always straightforward to reproduce in a digital image, and for instance the exact shade of red cannot necessarily be assessed from a digital image – especially since the verbal description may not be enough to convey an image of the specific shade, because of its simplicity (stated simply as “red”). Therefore the appearance of the red pigment, when “translated” to digital form, could therefore still remain distorted – even with the help of textual description.

### *Script and Illustration*

After ruling the pages, the scribe would write the text, after which an illuminator would add the decoration and illustrations. While this thesis is not specifically concerned with palaeography (the study of historical script forms), it is still relevant for the work of the codicologist, and therefore deserves a brief mention here. The type of script that is used in a manuscript will help the scholar of the medieval manuscript to date and place a given manuscript, and give further hints about a manuscript’s historical context. Furthermore, the text itself will also tell a great deal about who and what intended use the manuscript was for, which is why simply identifying the contents of a manuscript can be crucial. What is more related to the physical make-up of the medieval manuscript are the specific inks that were used to write and decorate it. Different inks, just like different types of parchment, were used in different times and different geographical areas. Therefore knowledge of the kind of ink that was used, and being able to tell inks apart on the page, can also tell us a great deal about the manuscript’s history. The same applies to decoration: recognising the style of decoration can not only help date and place a manuscript, but even to connect separate works to the same artistic trend – or even to the same artist.

It has already been argued in Chapter 1 that the digital medium poses more possibilities than challenges for palaeography. This is because script comes across in a digital image with relative ease, and therefore especially enjoys the advantages that are posed by digital imagery - namely the ease of comparing images, as well as zooming into the image to acquire character-level detail (Fig. 14 and Fig. 15). Digital images can show even more of the process of the scribe, for instance places where the text has been scratched off in order to make a correction (Fig. 16). These same advantages of detail and comparison also apply to decoration and illustration (Fig. 17). However, a problem arises when considering colour perception: a colour chart is present only occasionally, sometimes on top of the last page of the digital manuscript (Fig. 18), sometimes on its own, and sometimes not at all. Without a colour chart there is no real practical way of ascertaining colour accuracy, which can be a problem with regards to script, and especially with regards to

illustration.<sup>84</sup> Style of illustration is relatively straightforward to identify in a digital image, but ink colour and ink types less so. Of course, even inspection of a physical manuscript may not be enough to identify pigments, as pigment identification usually requires some form of scientific analysis. However, the digital image has the added setback of not necessarily being able to represent different colours and shade variations accurately – an issue somewhat inflated by the habitual absence of the colour chart.

Again, textual descriptions next to the digital imagery explain in language what the image shows: details of the script on the page (“single late-gothic formal text hand”), the layout of the text (“125 x 84, one column”), as well as decoration (“Major initials are decorated with floral infilling in pen-work; occasional human masks and cadelles in the upper margins”).<sup>85</sup> Again, a description of this nature may work as a summary of the manuscript in question, and as educational information for those who could not describe features such as text forms or decoration without assistance. However, the description offers only a quick overview of the manuscript, and not a description of the object as a whole, for instance accounting for different pages and possible irregularities and surprises. Therefore while textual description does its part in representing the manuscript through language, and offers a scholarly apparatus for the images themselves, it still cannot encompass all aspects of the physical manuscript. Even strictly physical description of the manuscript remains partial, rather than completely representational of the physical aspects of the manuscript in question.

### *Quires and Binding*

When all textual and decorative elements were on the page, the pages – at this point in loose quires – would be bound together. First the quires would be numbered, so that the binder could be sure that the quires are assembled in the correct order. An alternative way to arrange quires was the use of catchwords, where the last word of a quire would be repeated at the start of the next one in order to keep the quires in correct sequence. This would only have been done for the first half of the pages – because if the sequence of the first half was correct, the second half would automatically follow in the same order. After ordering the quires, the manuscript would be bound. Not nearly all medieval manuscripts were bound, and many manuscripts were bound a long time after their original production date. However, the age and type of the binding can again

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<sup>84</sup> D. Arnold, ‘Digital Artefacts: Possibilities and Purpose’, *The Virtual Representation of the Past*, M. Greengrass & L. Hughes (Ed.), (Farnham & Burlington: Ashgate 2008), p. 17.

<sup>85</sup> Utopia, *armarium codicum bibliophilorum*, Cod. 1, Description by Nigel F. Palmer (University of Oxford, 2006), <http://www.e-codices.unifr.ch/en/description/utp/0001/> (6 December 2015).

reveal a great deal about the production of the book, especially considering the rarity of original medieval bindings. The cover boards, for instance, would usually be made of oak in Northern Europe, and beech in the South. In addition to wooden boards, the bindings could be covered with leather, usually either tanned or alum-tawed pigskin. Similarly to the case of parchment, the type of skin used in binding may sometimes be identified by looking at the patterns of hair follicles – for instance in the case of pig skin, hair follicles are typically in groups of three.<sup>86</sup>

When relying on a digital representation of the manuscript, the ordering of the quires is evident from the quire numerals or catchwords visible in the digital image (Fig. 19). However, the quire marks are often missing in the medieval manuscript, often due to the trimming of the margins, either at the time of the manuscript's production, or afterwards. If these visual clues of quire organisation are missing, the digital images fail to convey the structure of the manuscript, being able to offer only a view of the flat page taken directly from above. However, one benefit of the digital imagery on E-Codices is that it offers a thumbnail-sequence of the manuscript pages which, if indeed in the correct order, can at least offer an overview of the sequence of the pages. With regards to bindings, E-Codices offers multiple views of the covers of the manuscript: a view of the back and front covers, the spine, the fore-edge, as well as the top and the bottom of the codex (Fig. 20). Therefore, even though the images remain out of scale, the user may get some kind of a visual indication of the kind of binding in question – including its materials, condition, and dimensions.

When it comes to structural aspects of the manuscript, textual information can arguably provide information more efficiently than an image. While there is variation in detail between the descriptions of different manuscripts on E-Codices, the physical description usually includes a description of collation (“1-78: 6V + II + V + II”) and extent (“1 + 78 + leaves; one loose paper leaf”).<sup>87</sup> Finally, there is also information on the binding, its construction and materials (“Sewn onto two double thongs laced into wooden boards, covered with brown calf”).<sup>88</sup> The structure of the manuscript is a physical aspect that is arguably only possible to come across using a formula of this nature: the structure of the manuscript is so fundamentally related to the manuscript as a physical object, that when the manuscript is represented as separate digital images of one page at a time, the structure arguably also gets lost in the process. With regards to bindings, the same principle that applies to parchment type and quality also applies here: the visual appearance of the binding can be represented in a digital photograph without much difficulty, but in the absence of

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<sup>86</sup> R. Clemens and T. Graham, *Introduction to manuscript studies*, p. 53

<sup>87</sup> Utopia, *armarium codicum bibliophilorum*, Cod. 1, Description by Nigel F. Palmer (University of Oxford, 2006), <http://www.e-codices.unifr.ch/en/description/utp/0001/> (6 December 2015).

<sup>88</sup> Utopia, *armarium codicum bibliophilorum*, Cod. 1, Description by Nigel F. Palmer (University of Oxford, 2006), <http://www.e-codices.unifr.ch/en/description/utp/0001/> (6 December 2015).

physical contact, textual description can still be helpful; both in identification of materials, and in supplying the user with appropriate terminology.

### *Dimensions*

While digital photographs combined with textual information may give an indication of physical size in the digital medium, fully understanding the physical size of the original manuscript can still remain a complex process. The problems that arise when attempting to indicate physical size in a digital image tend to be the same for every aspect of the manuscript; for instance, the size of the page, the size of the written area on the page, the thickness of the parchment, and the thickness of the covers. What is generally employed as an indicator of scale during digitization is a ruler that is set next to the object. However, there is considerable variation on E-Codices when it comes to this indicator of scale: a ruler is included only on one page after the set of digital images (Fig. 21), and similarly to the colour chart, is often absent. However, even with the addition of the ruler, a very basic issue of the digital image still persists: the digital pages remain flat images floating in digital space, essentially images that are not in scale in relation to the physical space that the user occupies. If present, what also remains out of scale is the ruler itself: this may seem like a self-evident point, but it is useful to stress that even the ruler is also removed from the physical space of the user, which means that for instance 155 millimetres according to the “digital ruler” is not what 155 millimetres looks like according to a ruler in the physical space of the user. In other words, the dimensions expressed by the ruler – if at all present – ultimately remain as much of an exercise of imagination as dimensions expressed in textual form.

Indeed the size of the manuscript is most usually expressed in textual form alongside the digital images, in other words, expressed in numbers. In one example, dimensions of the manuscript are expressed in millimetres in the category “format” (“177 x 135 mm”).<sup>89</sup> While this does give an indicator of size to the user, a disadvantage is created by the fact that the dimensions expressed are almost always limited to the dimensions of the page. For instance, there are no descriptions available which would indicate the thickness of the manuscript, or the thickness of the parchment page – or indeed the thickness of the covers. Providing the user only with the dimensions of the page, which is after all only one possible view of the physical manuscript, is in part responsible for the rather “flat” representation of the manuscript in a digital environment. This paired with the typical absence of a ruler can cause the comprehension of size to be a somewhat arduous

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<sup>89</sup> Utopia, *armarium codicum bibliophilorum*, Cod. 1, Description by Nigel F. Palmer (University of Oxford, 2006), <http://www.e-codices.unifr.ch/en/description/utp/0001/> (6 December 2015).

process for the user.

### 4.2.3. Phenomenology on E-Codices

Having discussed the specific physical features and the physical size of the medieval manuscript in its digital form, the issue of “the objectness of the object” also merits a revisit in the same context. The medieval manuscript is a complex physical construction of its many parts, catering to all senses. The transformation from the physical to the digital is complicated by the fact that the digital medium, as has already been discussed, relies almost exclusively on the sense of sight. The digital manuscript cannot therefore offer the haptic, material experience of holding a physical book made of parchment and leather in your hands. Nor can the digital manuscript offer the smell of a manuscript, or indeed the sound of the parchment pages being turned.<sup>90</sup> It is important to pose questions about the significance of these phenomenological losses, and how important they are when it comes to the interaction between the user and the medieval manuscript. Not only does the digital form create a separation between the user and the physical manuscript itself, but there are further possible consequences from these phenomenological losses: for instance with regards to the sound of the manuscript pages as they are turned; a sound which can also give hints as to the quality and type of parchment.<sup>91</sup> Omitting the phenomenological aspects of the manuscript therefore denies the user not only the full bodily experience of interacting with a physical object, but also denies the user the clues that these phenomenological aspects might offer – such as hints of medieval reading habits, and how the manuscript was originally meant to be used.<sup>92</sup>

The phenomenology of the manuscript also relates to its perceived historical aura, and the historical continuum of the historical artefact (as already discussed in Chapter 2). As discussed above, the history of interaction that the object has experienced is highly important to what Benjamin termed the “aura” of the historical object.<sup>93</sup> While encountering a representation rather than the physical object itself technically isolates the user from this historical aura of the object, there are ways in which the historical aura and the historical continuum of the physical object can

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<sup>90</sup> P. A. Stokes, ‘Teaching Manuscripts in the Digital Age’, *Kodikologie und Paläographie im digitalen Zeitalter 2/Codicology and Palaeography in the Digital Age 2*, F. Fischer et. al. (Ed.), (Norderstedt: Books on Demand 2010), p. 237.

<sup>91</sup> ‘Listening to the Medieval Book’, published by channel Smarthistory. art, history, conversation, 12 November 2014, n. pag., <https://www.youtube.com/watch?v=IjvXorny8xw> (6 December 2015).

<sup>92</sup> P. A. Stokes, ‘Teaching Manuscripts in the Digital Age’, p. 237.

<sup>93</sup> W. Benjamin, ‘The Work of Art in the Age of Mechanical Reproduction’, *Modern Art And Modernism: A Critical Anthology*, F. Frascina et. al. (Ed.), (Westview Press 1982), pp. 217-220.

still be visible in the digital manuscript: namely, they can be visible in details on the parchment surface. On E-Codices, these visible details include stains caused by readers' hands touching the manuscript over centuries (Fig. 22 and Fig. 23), as well as holes in the parchment (Fig. 24), subsequent repairs (Fig. 25), and damage caused by insects (Fig. 10). However, while these visual marks can usually be viewed in a digital photograph, what still cannot be represented in digital form is the experience of inhabiting the same physical space as the people in the past who left these marks.<sup>94</sup> Therefore the separation between the modern reader and the medieval reader persists; more specifically, a separation between the physical space of the reader(s) of the past, and the digital space of the modern reader of the digital manuscript. The complete privileging of the visual that is inherent to the digital medium still detracts from the user's experience of how the physical features of the physical manuscript relate to its intended use, its genre, and its historical context.

This chapter has described how the medieval manuscript is transformed into a digital object, using the website E-Codices as an example. It has been shown that the digital manuscript is composed of a combination of images and texts. In the confines of the digital medium, image and text come together to represent all aspects of the medieval manuscript: its specific physical features, its phenomenological aspects, as well as its contextual aspects. We have seen many issues within this act of representation, especially when it comes to the strictly physical features of the manuscript: when the manuscript loses its physicality, what gets lost in the process are the phenomenological aspects of the manuscript (i.e. touch, weight, smell), the historical aura of the manuscript, as well as any clues (for example related to intended use) connected to the physical form of the manuscript. What is also lost from the user is the chance to personally inspect the physical features of the manuscript, leaving the user to rely on the correctness of the digital representation. This is problematic because of possible distortions in the digital image, as well as the possibly erroneous or biased nature of the textual descriptions. However, there are many physical aspects of the manuscript that can be represented in alternative ways; largely because of the quality of the photographs and the detailed nature of the textual descriptions. If failing to fully convey the complexity of the manuscript as a physical object, digital imagery combined with detailed textual description can perhaps at least represent parts of the manuscript in alternative ways, give an indication of the nature of the manuscript in question, and offer a functional tool for the study of the manuscript that is being represented.

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<sup>94</sup> M. Nolan, 'Medieval Habit, Modern Sensation', p. 466.



## Epilogue

Digital objects, their value, meaning, and presence, have been [...] judged from the standpoint of the “superior” physical counterpart.<sup>95</sup>

This thesis has investigated the considerably complex topic of digital representation. At the very beginning it was asked how a medieval manuscript is transformed from a physical object into a digital object. The nature and the consequences of this transformation have now been discussed in detail, and will therefore not be repeated here. However, the motivation behind this initial query remains: questioning digital representation is a valuable endeavour, especially considering how much reliance is placed on digital resources in all areas of scholarship today. Being aware of the successes and failings of digital representations is central to determining how those representations can be best put to use. However, judging digital objects such as the digital manuscript solely from the point of view of the physical object can be possibly distracting: in fact, it may be worthwhile to briefly consider the digital manuscript on its own terms, in order to end these considerations of the digital manuscript on a more productive note. Making judgements of value based solely on comparison may indeed draw attention away from the reason why the digital manuscript remains such a successful digital object: because the digital manuscript is, in many ways, very useful.

While most functionalities of digital images and texts have already been discussed at length, what deserves repetition here is what truly makes the digital manuscript such a useful object: the complex nature of the digital manuscript, and the way it brings together so many different components relating to a single artefact under one “digital umbrella”. As has been shown above, the digital manuscript is a combination of different representational components, many kinds of textual information and metadata, as well as a hypothetically vast amount of contextual information and bibliographies – all present in the same digital environment. The digital manuscript allows the user to move between these different components in just a few clicks of the mouse, jumping over many hurdles that would possibly be laborious to overcome when consulting a physical manuscript in an institutional context. While this thesis has focused on the merits of the digital manuscript as a representation of the physical manuscript, and while we

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<sup>95</sup> F. Cameron, ‘Beyond the Cult of the Replicant’, p. 49.

should remain aware of the successes and failings of this act of representation, it may be useful to remember that the digital manuscript can also be considered as an entity unto itself. While there are physical aspects of the manuscript that the digital manuscript cannot represent, and while there are complications and compromises related to what it can represent, the digital manuscript can still be very useful as an alternative representation. What the digital manuscript arguably lacks in need not therefore necessarily take away from what it can offer instead: a complex digital tool for the study of the medieval manuscript, and whose success can also depend on its own merits and usability, rather than solely on how it compares to the physical manuscript it represents.

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## Appendix: Images from E-Codices

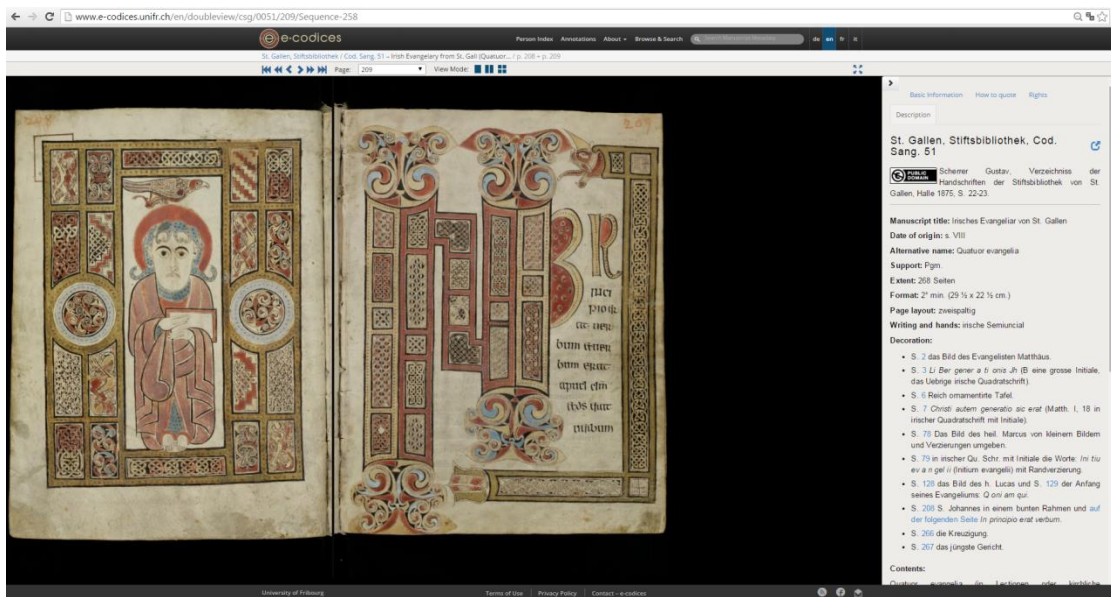


Figure 1: Manuscript “open book” – view, with window for textual information on the right, St. Gallen, Stiftsbibliothek, Cod. Sang. 51, pp. 209-210 – Irish Evangelary from St. Gall (Quatuor evangelia), <http://www.e-codices.unifr.ch/en/list/one/csg/0051> (5 December 2015).

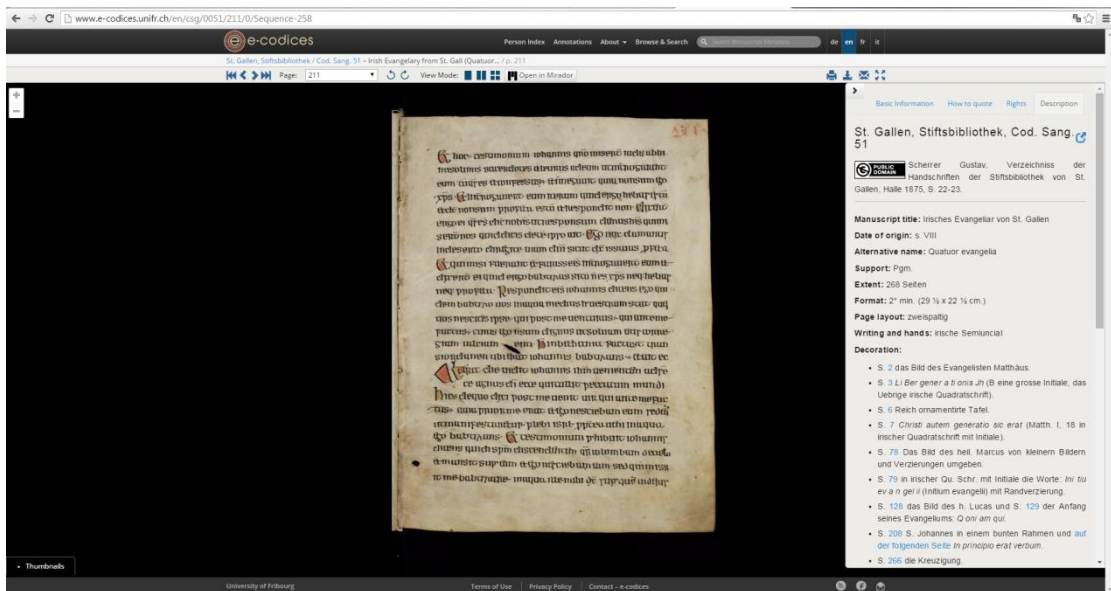


Figure 2: Manuscript view of a single page, with window for textual information on the right, St. Gallen, Stiftsbibliothek, Cod. Sang. 51, p. 211 – Irish Evangelary from St. Gall (Quatuor evangelia), <http://www.e-codices.unifr.ch/en/list/one/csg/0051> (5 December 2015).

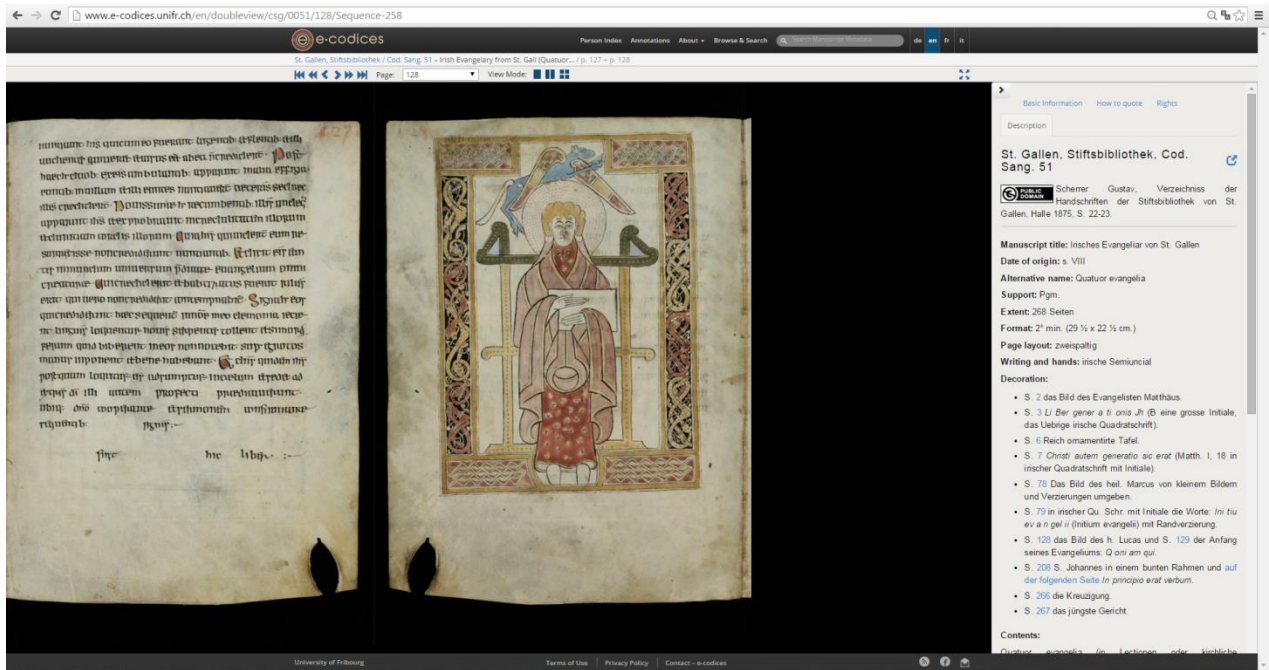



Figure 3: Recto-verso – view of both sides of the same page, St. Gallen, Stiftsbibliothek, Cod. Sang. 51, p. 126 – Irish Evangeliary from St. Gall (Quatuor evangelia), <http://www.e-codices.unifr.ch/en/list/one/csg/0051> (5 December 2015).

Select manuscript from search results:  1/43


Facsimile: [Single page](#) | [Double page](#) | [Thumbnails](#)




Document Details Annotations (1) Additional Bibliography (1)

Country of Location: Switzerland  
 Location: St. Gallen  
 Library / Collection: Stiftsbibliothek  
 Settlement, shelfmark: Cod. Sang. 51  
 Manuscript Title: Irish Evangeliary from St. Gall (Quatuor evangelia)  
 Caption: Parchment - 268 pp. - 29.5 x 22.5 cm - Ireland - about 750  
 Language: Latin  
 Manuscript Summary: The Irish Gospel Book of St. Gall. Gospels according to Matthew, Mark, Luke and John, illustrated with 12 decorated pages, written and illuminated by Irish monks around 750 in Ireland. (*fstu*)  
 Standard description: Scherrer Gustav, Verzeichnis der Handschriften der Stiftsbibliothek von St. Gallen, Halle 1875, S. 22-23. [Show standard description](#)  
 DOI (Digital Object Identifier): 10.5076/e-codices-csg-0051  
 Permanent link: <http://www.e-codices.unifr.ch/en/list/one/csg/0051>  
 IIF Manifest URL: <http://www.e-codices.unifr.ch/metadata/iif/csg-0051/manifest.json>  
 How to quote: St. Gallen, Stiftsbibliothek, Cod. Sang. 51: Irish Evangeliary from St. Gall (Quatuor evangelia) (<http://www.e-codices.unifr.ch/en/list/one/csg/0051>).  
 Online Since: 06/12/2006  
 Additional literature: [Additional literature - St. Galler Bibliotheksnetz \(SGBN\) - Verbundkatalog](#)  
 External resources: 

- Monumenta Text Database
- Wikipedia (English)

  
 Restoration report: [Martin Srebel 2008 \(PDF, 17.57 MB\) - © Stiftsbibliothek - Martin Srebel](#)  
 Rights:   
 (Concerning all other rights see each manuscript description and our [Terms of use](#))

Reference Images and Binding



Front cover Spine Back cover

Figure 4: Textual overview of a manuscript before entering the page-viewer, St. Gallen, Stiftsbibliothek, Cod. Sang. 51: Irish Evangeliary from St. Gall (Quatuor evangelia), <http://www.e-codices.unifr.ch/en/list/one/csg/0051> (5 December 2015).





Figure 5: High quality parchment: full page and detail, Vevey, Musée historique de Vevey, Inv. Nr. 1346, p. 71 – Antiphonarium lausannense, pars hiemalis (vol. I), <http://www.e-codices.unifr.ch/en/list/one/mhv/1346> (5 December 2015).

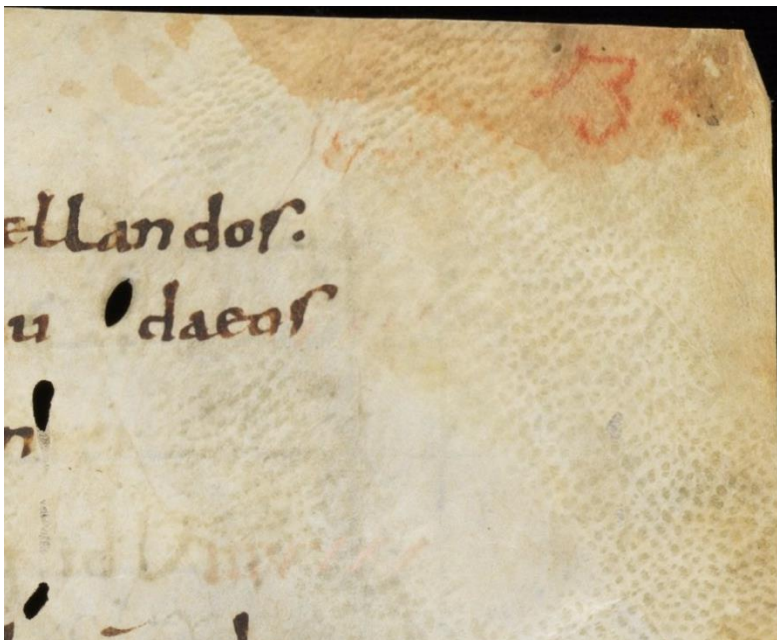


Figure 6: Hair follicles visible on parchment surface, St. Gallen, Stiftsbibliothek, Cod. Sang. 47, p. 3 – Maccabæorum lib. I-II., <http://www.e-codices.unifr.ch/en/list/one/csg/0047> (5 December 2015).

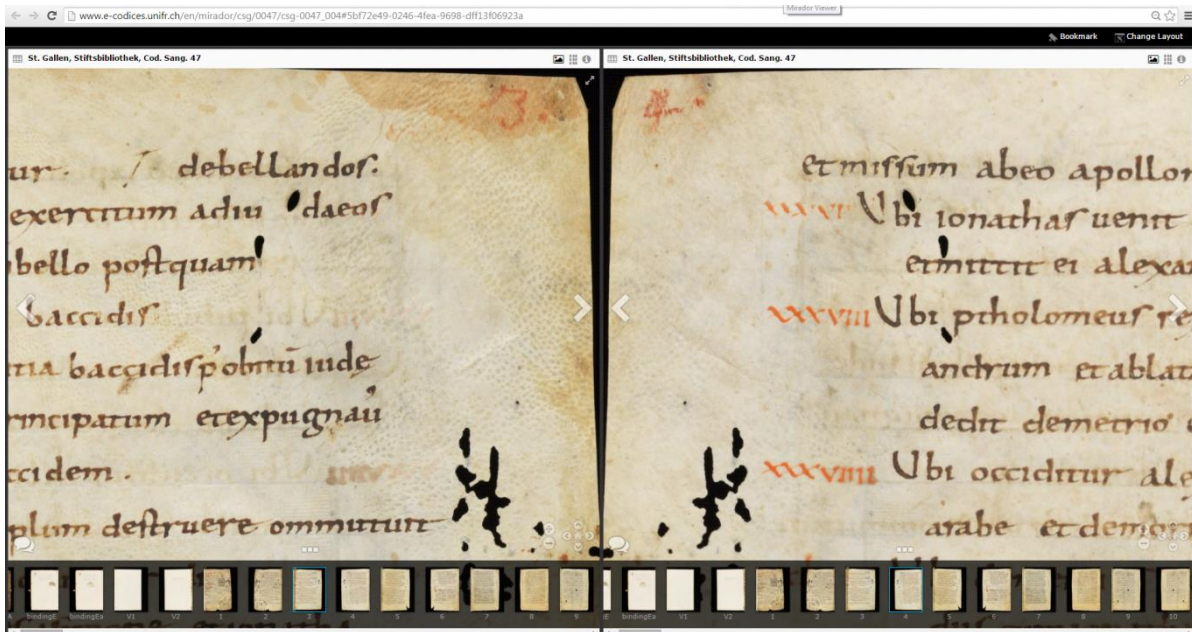


Figure 7: Different sides of the same sheet of parchment, zoomed in, hair side on the left, flesh side on the right. As viewed on the Mirador viewer, St. Gallen, Stiftsbibliothek, Cod. Sang. 47, pp. 3-4 – Maccabæorum lib. I-II. (<http://www.e-codices.unifr.ch/en/list/one/csg/0047> (5 December 2015)).

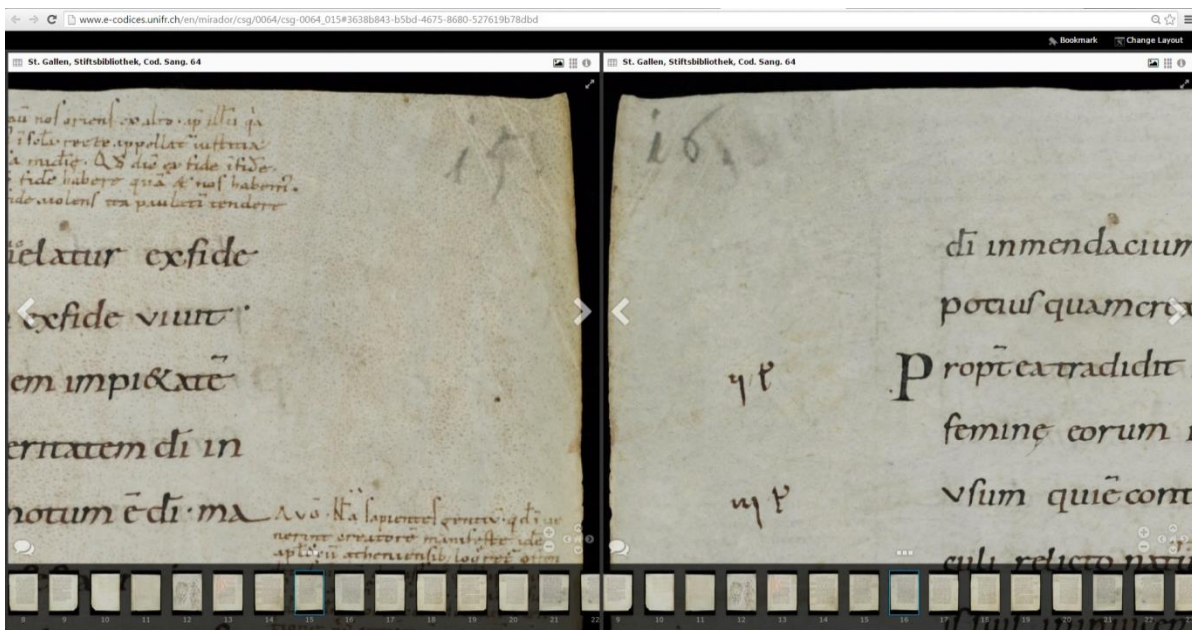


Figure 8: Different sides of the same sheet of parchment, zoomed in, hair side on the left, flesh side on the right. As viewed on the Mirador viewer, St. Gallen, Stiftsbibliothek, Cod. Sang. 64, pp. 15-16 – Bible (Epistles of Paul); Alcuin; Apuleius, <http://www.e-codices.unifr.ch/en/list/one/csg/0064> (5 December 2015).



Figure 9: View of the manuscript's fore-edge, St. Gallen, Stiftsbibliothek, Cod. Sang. 553, Fore edge – Lives of the Irish saints and saints of St. Gall, <http://www.e-codices.unifr.ch/en/list/one/csg/0553> (5 December 2015).

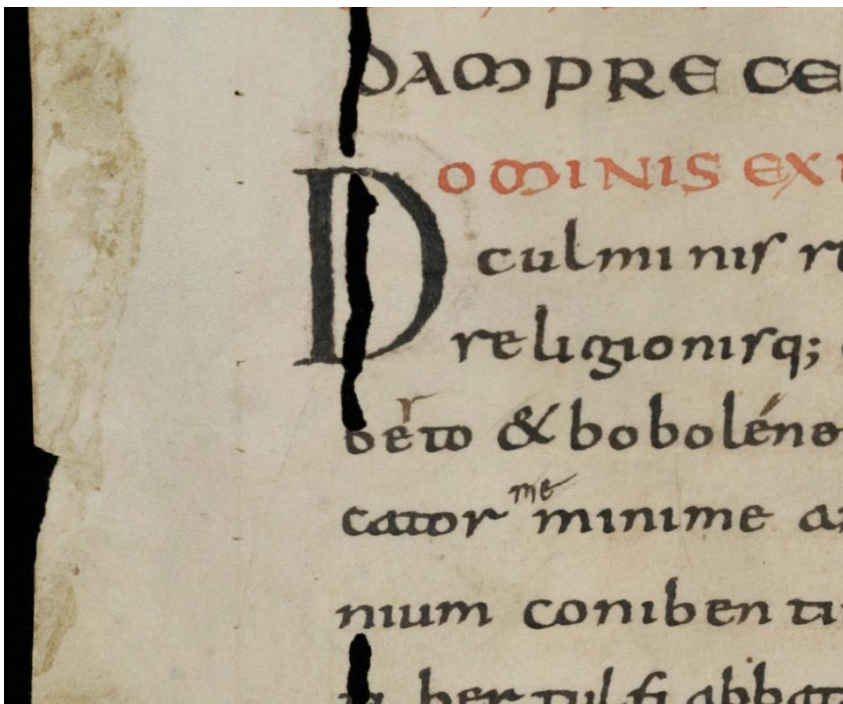


Figure 10: Prick marks in the margin, next to damage caused by pests over the text, St. Gallen, Stiftsbibliothek, Cod. Sang. 553, p. 2 – Lives of the Irish saints and saints of St. Gall, <http://www.e-codices.unifr.ch/en/list/one/csg/0553>, (5 December 2015).



Figure 11: Ruling in plummet, St. Gallen, Stiftsbibliothek, Cod. Sang. 26, p. 13 – Short Psalter, produced in the west English Abbey of Malmesbury, <http://www.e-codices.unifr.ch/en/list/one/csg/0026> (5 December 2015).

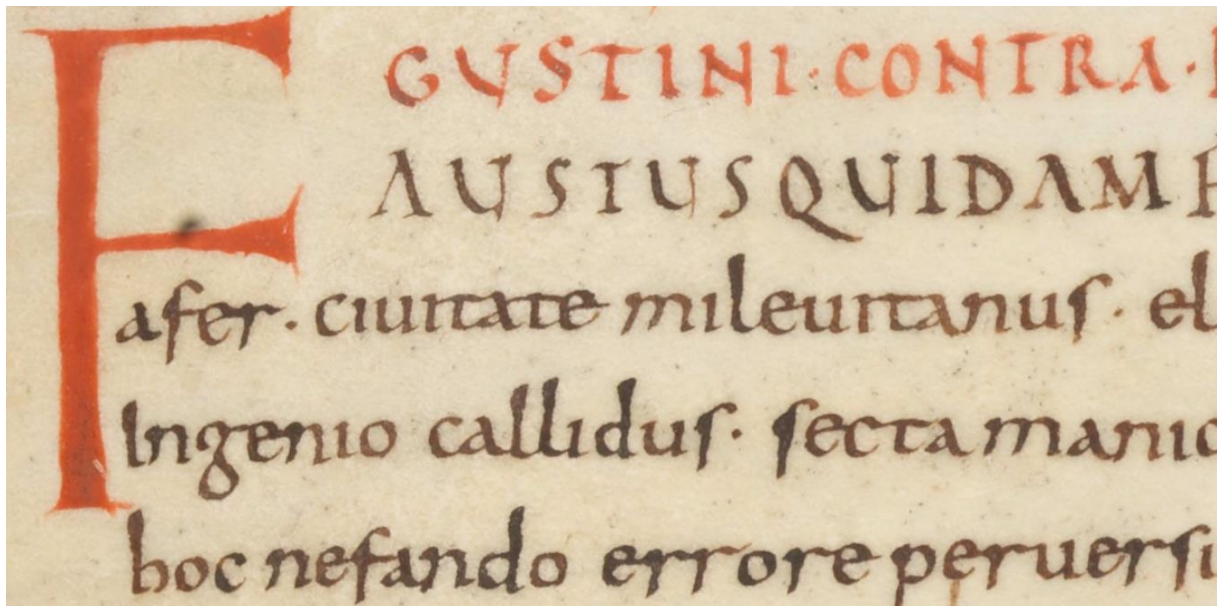


Figure 12: No visible sign of ruling on the page, St. Gallen, Stiftsbibliothek, Cod. Sang. 172, p. 3 – Augustinus, Contra Faustum Manichaeum libri II, <http://www.e-codices.unifr.ch/en/list/one/csg/0172> (5 December 2015).

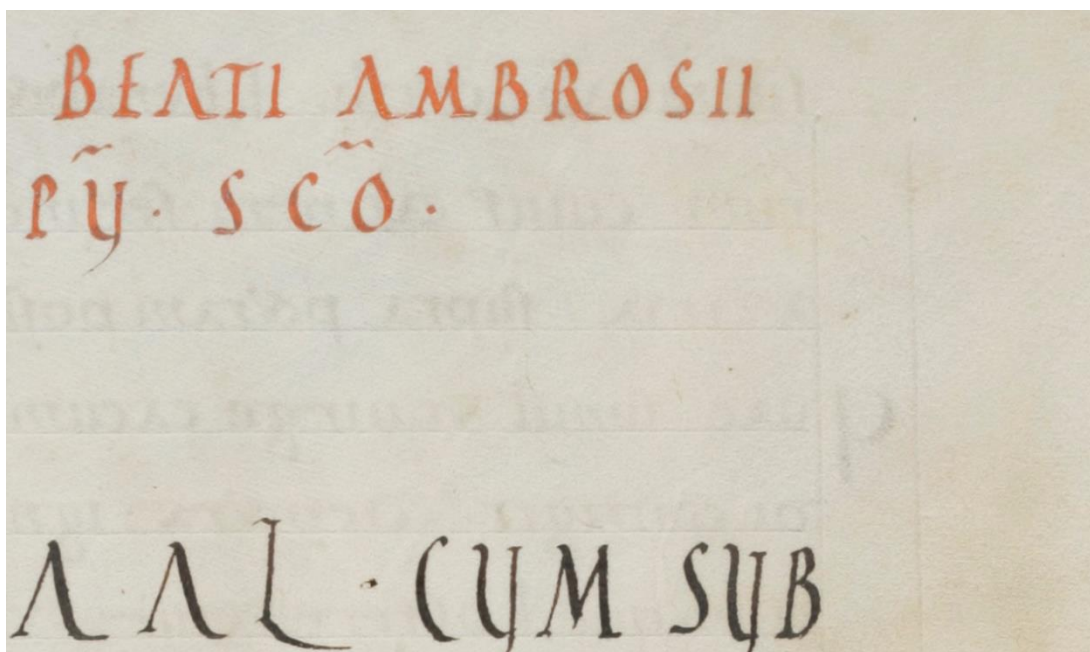


Figure 13: Pressure lines created by dry-point ruling, St. Gallen, Stiftsbibliothek, Cod. Sang. 102, p. 11 – Ambrose, "De spiritu sancto" and "De incarnationis dominicae sacramento" . Victricius of Rouen, "De laude sanctorum", <http://www.e-codices.unifr.ch/en/list/one/csg/0102> (5 December 2015).

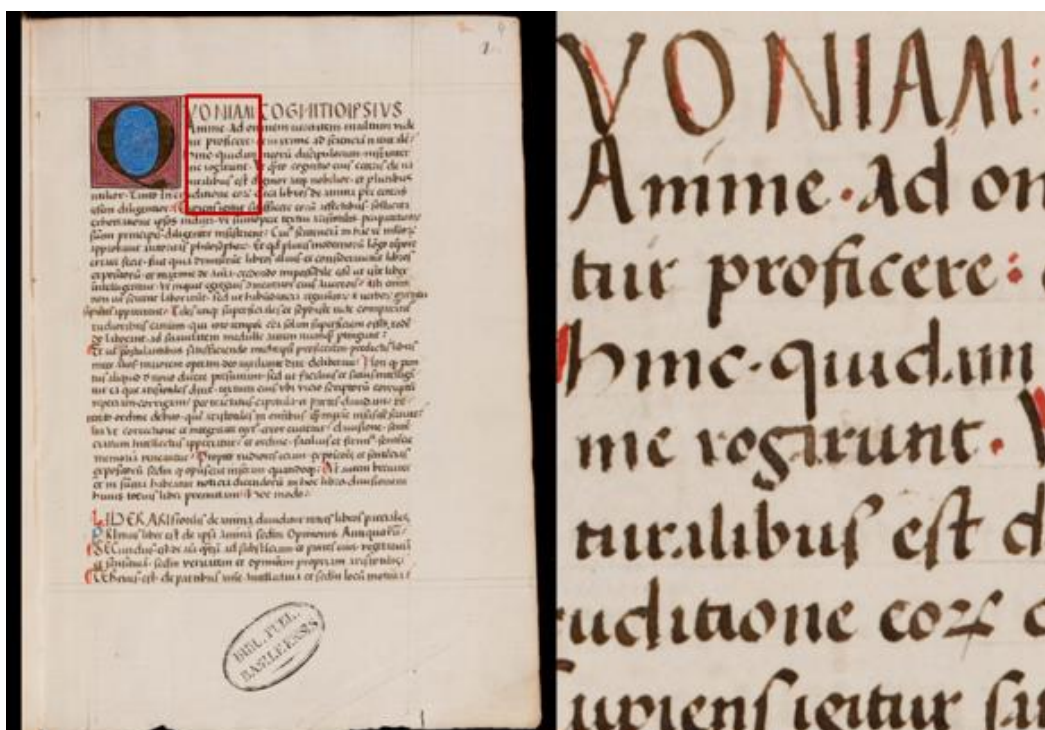


Figure 14: Example of script, full page and detail, Basel, Universitätsbibliothek, Bc II 5, f. 4r – Aristoteles, Miscellany, <http://www.e-codices.unifr.ch/en/list/one/ubb/Bc-II-0005> (5 December 2015).

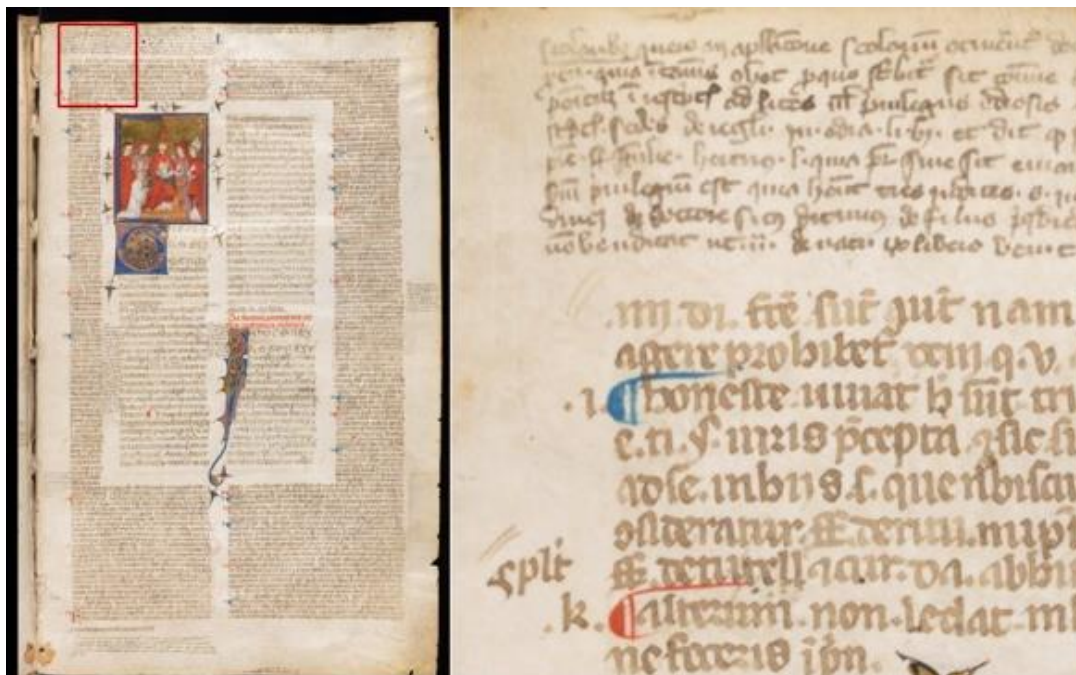


Figure 15: Script, full page and detail, St. Gallen, Stiftsbibliothek, Cod. Sang. 742, p. 7  
 – Large-format copy of the Decrees issued in 1234 by Pope Gregory IX  
 (<http://www.e-codices.unifr.ch/en/list/one/csg/0742>) (5 December 2015).

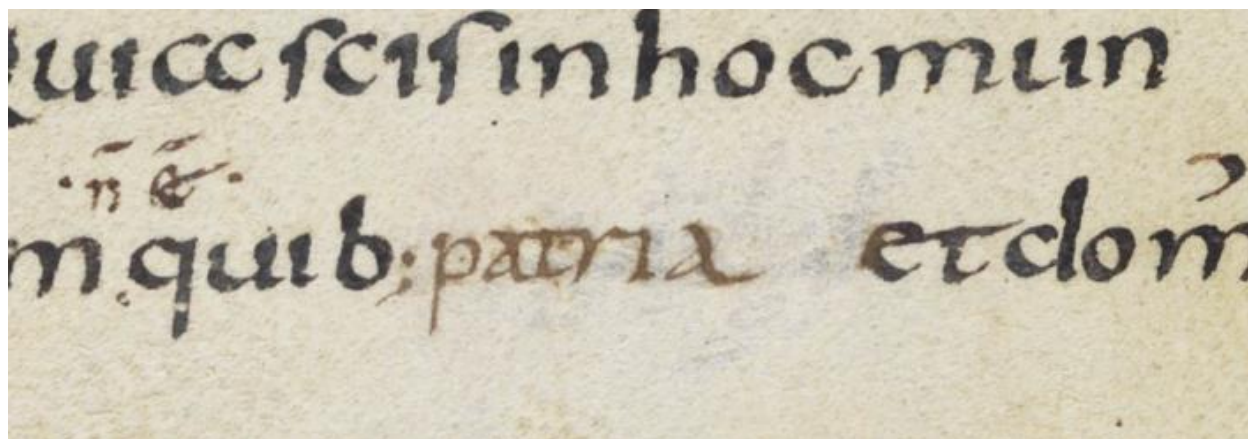


Figure 16: A correction in the text, St. Gallen, Stiftsbibliothek, Cod. Sang. 229, p. 341  
 – Isidorus, Sententiae, <http://www.e-codices.unifr.ch/en/list/one/csg/0229> (5 December 2015).



Figure 17: Illustration and detail, Zürich, Zentralbibliothek, Ms. Rh. 167, f. 7v – Rheinau Psalter, <http://www.e-codices.unifr.ch/en/list/one/zbz/Ms-Rh-0167> (5 December 2015).

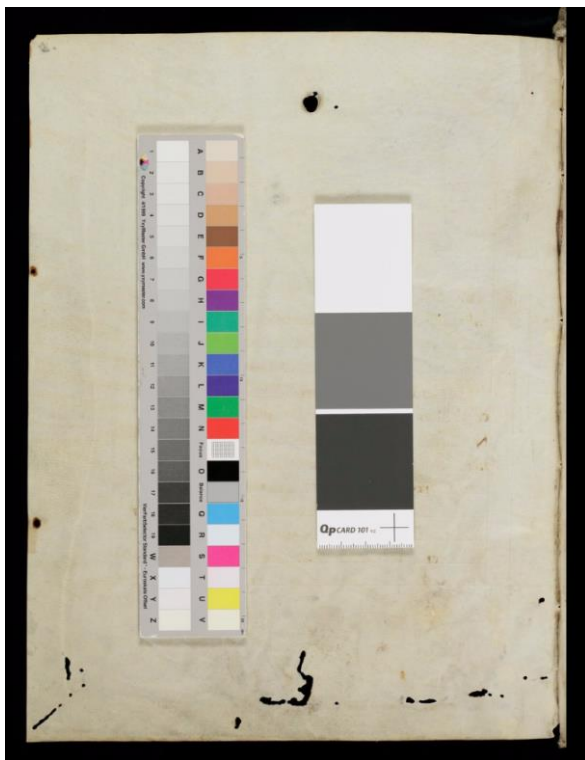


Figure 18: Colour profile on an example page, St. Gallen, Stiftsbibliothek, Cod. Sang. 102, Color profile – Ambrose, "De spiritu sancto" and "De incarnationis dominicae sacramento" . Victricius of Rouen, "De laude sanctorum", <http://www.e-codices.unifr.ch/en/list/one/csg/0102> (5 December 2015).

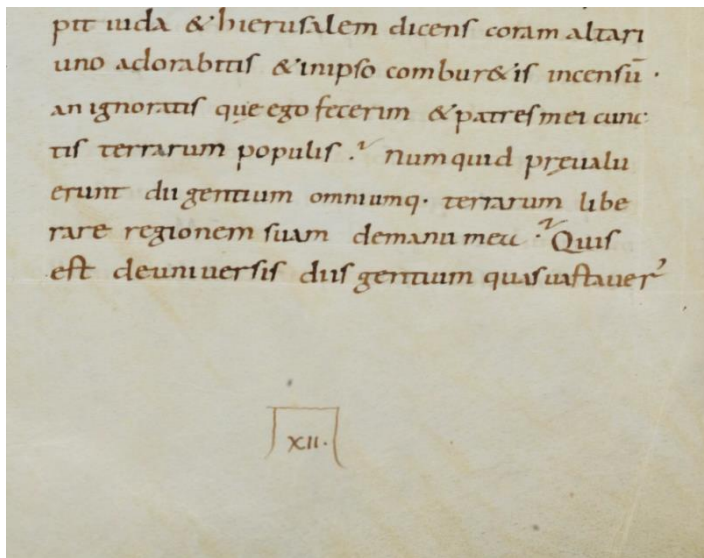


Figure 19: Quire numeral suggesting  
 structure, St. Gallen, Stiftsbibliothek,  
 Cod. Sang. 7, p. 440 – Bible (Prov,  
 Eccl, Song, Wis; I-II Chr),  
<http://www.e-codices.unifr.ch/en/list/one/csg/0007>  
 (5 December 2015).



Figure 20: Sides of the manuscript,  
 left to right: Spine, fore-edge, head  
 (top), tail (below), St. Gallen,  
 Stiftsbibliothek, Cod. Sang. 553 –  
 Lives of the Irish saints and saints  
 of St. Gall, <http://www.e-codices.unifr.ch/en/list/one/csg/0553>  
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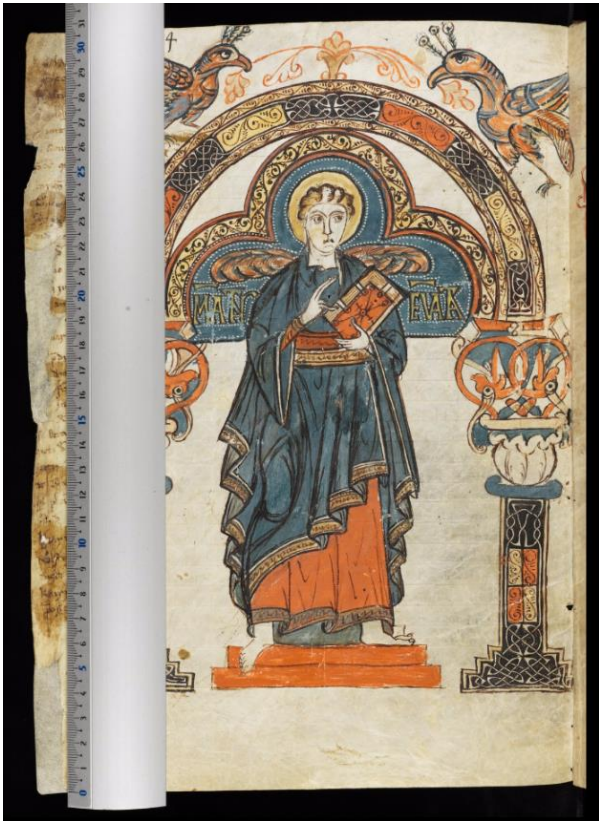


Figure 21: Ruler on an example page, St. Gallen, Stiftsarchiv (Abtei Pfäfers), Cod. Fab. 1, Evangelistary ("Liber viventium"), <http://www.e-codices.unifr.ch/en/list/one/ssg/fab0001> (5th December).

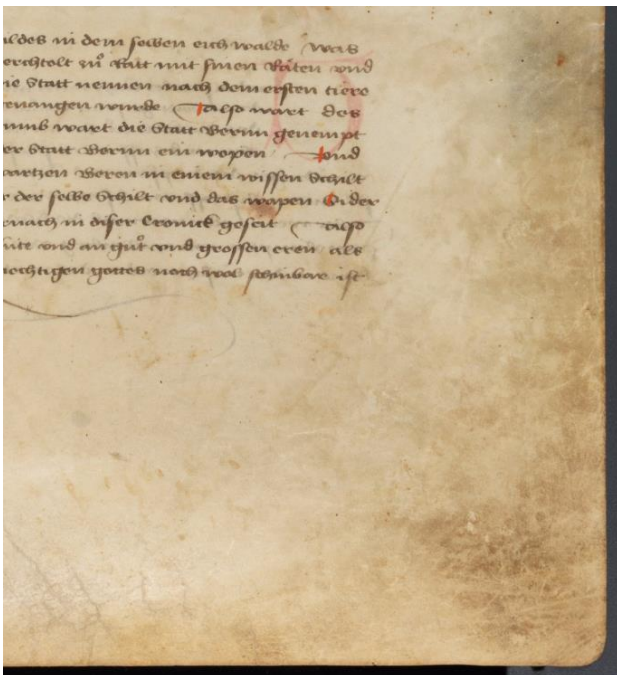


Figure 22: Corner worn and stained from turning the pages, Bern, Burgerbibliothek, Mss.h.h.I.1, f. 13 – Diebold Schilling, Amtliche Berner Chronik, vol. 1, <http://www.e-codices.unifr.ch/en/list/one/bbb/Mss-hh-I0001> (5 December 2015).

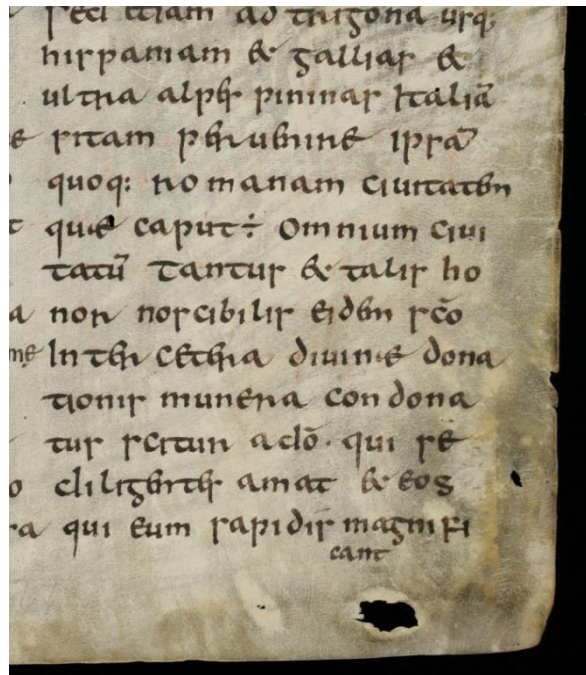


Figure 23: Corner worn and stained from turning the pages, another example, Schaffhausen, Stadtbibliothek, Gen. 1, p. 135 – Adamnanus de Iona, Vita Columbae, <http://www.e-codices.unifr.ch/en/list/one/sbs/0001> (5 December 2015).

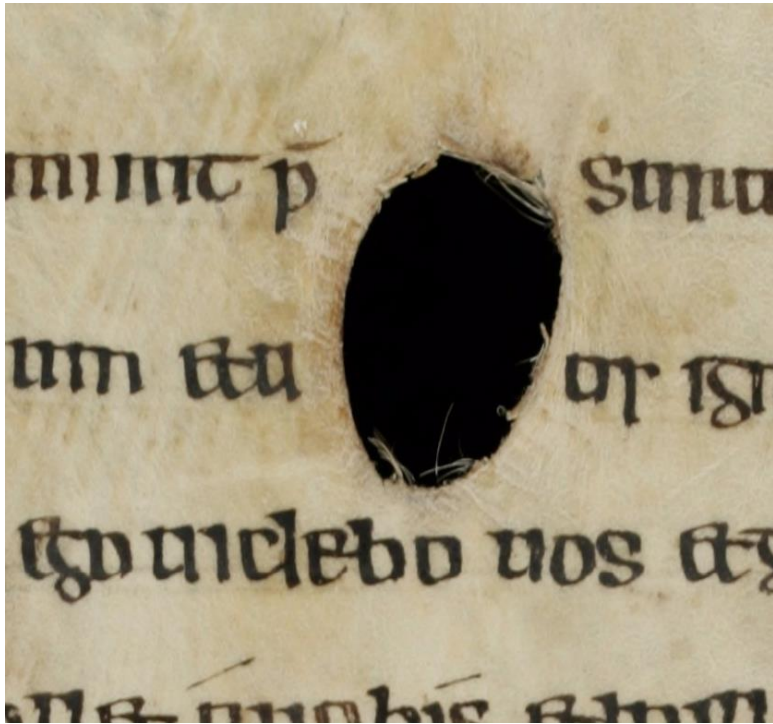


Figure 24: Hole in the parchment with hair visible around the edges, St. Gallen, Stiftsbibliothek, Cod. Sang. 51, p. 254 – Irish Evangelary from St. Gall (Quatuor evangelia), <http://www.e-codices.unifr.ch/en/list/one/csg/0051> (5 December 2015).

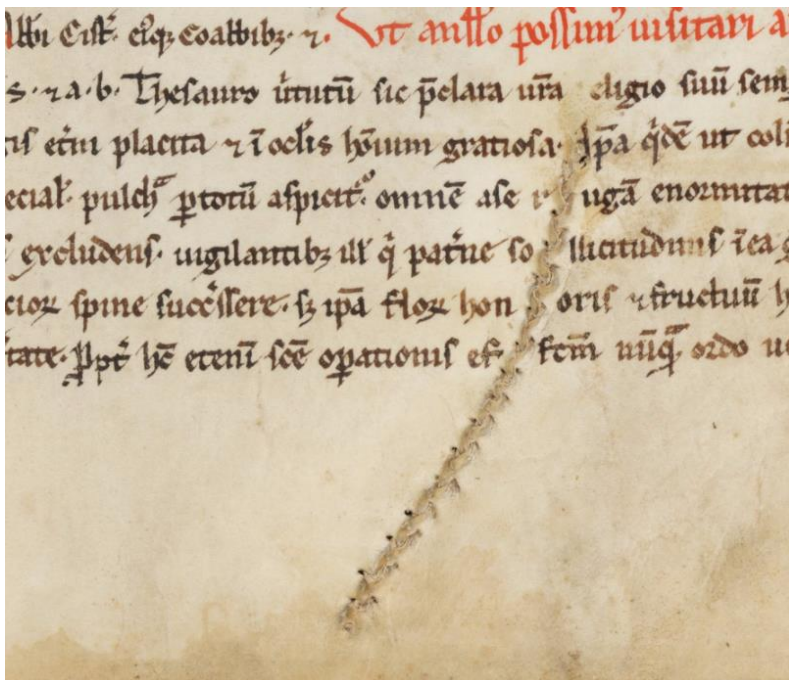


Figure 25: Repaired tear in the parchment, Aarau, Staatsarchiv Aargau, AA/3115, f. 3 – The Little Urbarium (Registrum Privilegiorum; Urbaria), (<http://www.e-codices.unifr.ch/en/list/one/saa/AA3115>) (5 December 2015).