The Development of Landscape Painting Between the Late Gothic Period and the Early Renaissance

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Abstract

This dissertation identifies several foundational advances that were instrumental in the emergence of early Renaissance landscape painting, a development that began to take shape between the late fourteenth through the fifteenth centuries. The purpose is to discover what the primary factors were that led to the inception of this new form of artistic expression. This objective is accomplished through an examination of the stylistic and formal changes, new advancements in materials and technical innovations, and various aspects of the cultural environment. The present study also seeks to understand how artistic exchange between Italian and Northern painters affected the development of painting landscapes. The research shows that the realistic rendering of natural objects and environments was the necessary initial phase of the development. The impulse to look to nature occurred first in Italy, and was based on the need for empirical illustrations for practical texts. In the North, East Anglian and French illuminations demonstrate that naturalistic art quickly became an important aspect of the Gothic aesthetic, and it was integrated into religious texts purely for artistic purposes. Northern manuscript painters were the first to develop a range of techniques for using light and colour to portray realistic natural environments, and Italian painters emulated these techniques to imbue their landscapes with a specific mood or emotion. For inspiration, artists in Italy and the North drew on both classical pastoral landscapes and the medieval concept of gardens of paradise. By tracing these developments, it becomes clear that the exchange of ideas and methods between Italian and Gothic painters, particularly among manuscript illuminators and miniaturists, was a crucial factor in the development of postclassical European landscape painting.

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Introduction

The transition from the medieval period to the early Renaissance was accompanied by a significant evolution in artistic expression, particularly in the emergence of landscape painting. This was a time marked by profound transformations in various aspects of religion, science, and cultural experience. The thriving intellectual climate led to an increased fascination with nature, which included an interest in natural philosophy, as well as the metaphysical aspects of nature. Along with this growing enthusiasm, there was a change in the feeling towards nature in a spiritual sense, as the natural world came to be viewed as a manifestation of divine creation. Among artists, a new spirit of exploration flourished alongside advancements in technical skills and the introduction of new artistic methods and materials. In practical herbal texts, such as those used for identifying plants for medicinal use, artists began drawing botanical subjects from direct observation rather than copying from classical depictions. There was a new appetite for innovation, and the exchange of knowledge and methodology throughout different regions led to the development of the International Gothic style.

Manuscript illuminators were especially innovative in their approach to painting, using pigments and binders in new ways that allowed them to portray colour and atmosphere with realistic results. Experimentation with new paint application techniques helped them portray subtle gradations of light and shade to define natural forms and to create the illusion of space and volume. In the fourteenth century, evolving ideas about nature and its relation to both earthly enjoyment and spiritual fulfillment provided the context for the development of landscape painting. The International Gothic movement and the extent of artistic exchange between northern Europe and Italy is of particular interest to this discussion and will be examined along with the origins and spread of specific motifs and methods. The aim of this dissertation is to explore the artistic changes that took place between the late medieval and early Renaissance periods which facilitated the growth of landscape painting, and to discover how the religious and cultural environment, stylistic tendencies, and aesthetic concerns of the International Gothic movement affected this development.

Historiography

Landscape painting as an independent genre in Europe did not emerge until the sixteenth century, and was practiced mainly in German and Dutch-speaking lands. Available research on the history of European landscape painting before this time, or as

it developed in Italy, is sparse. Georgio Vasari's *Lives of the Artists*,[1] first published in 1550, does not cover landscape painting extensively, though this is the earliest source of writing that discusses the initial development of the genre during the early Renaissance. Karen Hope Goodchild has examined Vasari's work to understand his views on landscape painting. Her research suggests he felt that naturalistic landscape painting was primarily a characteristic of Northern art.[2]

Otto Pächt's 'Early Italian Nature Studies and the Early Calendar Landscape', is a classic reference on landscape painting in Italy.[3] He traces the evolution of landscape painting to the development of observational rendering and the introduction of the naturalistic setting. The underlying aim of his essay is to draw attention to the Italian innovations leading up to the emergence of landscape painting. With his focus on Italian art, he tends to brush aside Northern contributions. He does not provide much acknowledgement of the international and courtly aspects of the Late Gothic style, or its role in the development of landscape painting.

Another study dedicated to the early development of landscape painting from an Italian perspective is *The Vision of Landscape in Renaissance Italy*, by A. Richard Turner, though it does not cover the subject from before the fifteenth century, and its helpfulness is therefore limited. One resource that has been very useful as a guide throughout this dissertation is *Landscapes and Seasons of the Medieval World* by Derek Pearson and Elizabeth Salter.[4] This is the only sizable work that covers transalpine artistic exchange within the context of the development of landscapes from the

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[1] As Vasari was writing before the period of modern research standards, his work can not be relied upon for historical accuracy. His commentary is useful, however, as it gives us a sense of what people may have thought at the time. It is also the source of some terminology and many of the misconceptions about artists and their work that have persisted into the modern era. Paul Barolsky, '*The Burlington Magazine* and the Death of Vasari's *Lives*', *Arion: A Journal of Humanities and the Classics*, 20.2 (Fall 2012), pp. 63-80. Giorgio Vasari, *The Lives of the Artists*, trans. by Julia Conaway Bondanella and Peter Bondanella (Oxford University Press, 2008). Hellmut Wohl, 'The Eye of Vasari', in *Mitteilungen des Kunsthistorischen Institutes in Florenz*, 30.3. (1986), pp. 537-568.

[2] Karen Hope Goodchild has written specifically about Vasari's commentaries on Northern painters while also examining what he had to say about landscape painting. Her research suggests that Vasari felt naturalistic landscape painting was primarily a +characteristic of Northern art. Karen Hope Goodchild, '"A Hand More Practiced and Sure": The History of Landscape Painting in Giorgio Vasari's "Lives of the Artists"' *Artibus et Historiae* , 2011, 32.64, Special issue on the quincentennial of Giorgio Vasari's birth (1511-2011) (2011), pp. 25-40.

[3] Otto Pächt, 'Early Italian Nature Studies and the Early Calendar Landscape', *Journal of the Warburg and Courtauld Institutes*, 13.1/2 (1950), pp. 13–47.

[4] Derek Pearsall and Elizabeth Salter, *Landscapes and Seasons of the Medieval World* (University of Toronto Press, 1973).

medieval era. It focuses on the links between visual art, poetry, and other literature, and gives a broad overview of material. The present research will go deeper into a small number of topics mentioned in this book and will also draw on many other sources, not only landscape history, but also works focusing on topics such as Gothic art and manuscript painting. While branching into these areas this dissertation has consulted classic studies by art historians such as Erwin Panofsky and Millard Meiss, as well as relevant recent scholarship.

Methodology

Chapter one will examine the connection between early naturalistic painting and the heightened interest in the natural world that arose abruptly during the twelfth century. It will show that the growth of natural philosophy and scientific interests encouraged artists working within intellectual and aristocratic circles to depict nature with greater realism. The methodological approach begins with establishing the characteristics of Gothic style and its origins. An explanation of the terms 'Gothic' and 'Gothic naturalism' will be given, as well as an introduction to the elements of the 'International Gothic' style. Also known as the 'court style', the 'International Style', or 'Late Gothic', this movement was a new way of expressing the natural world that emerged as the first modern aesthetic within Western art. The works of art are analysed by their formal and stylistic qualities. The iconography of motifs such as botanical patterns and animal forms will be discussed in light of the context in which they were created and how they evolved over time by spreading through ecclesiastical and aristocratic courts.

Chapter two focuses on the technical innovations and stylistic advancements involving the use of light and colour in Parisian and Franco-Flemish manuscript illumination and in Flemish panel painting. Miniaturists working for French nobility in the early fifteenth century were especially innovative in their approach to depicting colour and light in the natural environment. This chapter will explain some of the important achievements of these artists, including modifications in tone, increasing variations in hues and colour intensity, layering with thin glazes, and advanced methods of colour blending with the use of new techniques and materials. An iconological approach is used to interpret the use of certain motifs and themes, as well as the use of light as a symbolic or stylistic choice. The chapter will conclude with a brief look at the influence of these Northern painters on early Renaissance Italian artists who used similar techniques to achieve remarkable effects of light and colour in their landscape backgrounds.

Lastly, the third chapter will explore the growing interest in pastoral landscapes and pleasure gardens and the effect this had on the growth of landscape paintings. The

motif of the flowering meadow will be examined within its iconological context to explain how it evolved as an allusion to various concepts of paradise. The classical *locus amoenus* and the medieval *hortus conclusus* were the two main sources that artists drew inspiration from when the art of landscape painting was in its early phase of development. This chapter will show that the merging of the concepts of the idyllic pastoral landscape and paradisiacal gardens created the context in which landscape painting developed in post-classical European art.

1. Naturalism and Visual Experience in Gothic Manuscript Illustration

Introduction

Gothic art, which arose in northern France in the twelfth century, introduced new aesthetic considerations that transformed the way artists perceived and interpreted the natural world. The theological teachings that emerged during this period promoted a new outlook on nature and spirituality—one that moved from the early Christian emphasis on spiritual truths and universal forms, to a new understanding of the material world as a direct manifestation of God. This new perspective inspired artists to take an interest in the visible world as never before, prompting the development of the practice of direct observation for the rendering of naturalistic details. The shift from the stylized forms of medieval art to the more realistic portrayals of nature reflects a growing interest in the material world and visual experience.[5] As late medieval painters began to portray natural phenomena with greater sophistication, their work laid the groundwork for the naturalistic landscapes that became a main feature of Renaissance painting in northern Italy and north of the Alps. The accurate portrayal of nature in all its various forms was an essential step towards the representation of naturalistic landscapes.

One important facet of this transformation was the art of manuscript illustration, which established many of the foundational techniques and stylistic innovations that influenced later landscape painters. The practice of direct visual observation and the rendering of realistic botanical and animal subjects in illustrated texts and miniatures led to more advanced methods of recording natural forms. In the fourteenth century, manuscript artists in northern Europe began to combine their proficiency for detailed realism with the Italian interest in volume and space. At the same time, Italian artists were influenced by northern naturalism and other characteristics of the Gothic style that reflected the refined courtly aesthetic favored by aristocratic patrons north of the Alps.[6]

Gothic naturalism and visual observation

The usage of the term 'Gothic' in art refers to a style of architecture and visual art that first emerged in the cathedrals of northern France in the early twelfth century, spreading to other parts of Europe by the middle of the thirteenth century. The term was first applied to art history by Italian writers, most notably Giorgio Vasari, during

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[5] Micheal Camille, *Gothic Art: Visions and Revelations of the Medieval World*, (Calmann and King, Ltd., 1996), pp. 133–138; Max Dvořák, *Idealism and Naturalism in Gothic Art*, trans. by Randolph J. Klawiter (University of Notre Dame Press, 1967), pp. 30, 32, 77.
[6] Derek Pearsall and Elizabeth Salter, *Landscapes and Seasons of the Medieval World*, pp. 161–165, 180–182, 185–192, 204.

the sixteenth century as a way to disparage art and architecture that resembled the style found in Germanic or 'barbarian' lands north of the Alps. This style of art was often judged as inferior for its lack of classical and Italian influence. It was not until the Gothic Revival in the eighteenth century that historians began to re-examine and appreciate the characteristics that made this art so unique and wholly worthy of praise on its own merit.[7] The stylistic traits associated with Gothic art first emerged in architecture—with the characteristic pointed arches, flying buttresses, and intricate tracery—though it quickly encompassed all of the arts from sculpture and painting to stained glass and tapestries. As the earliest postclassical artistic style to emerge, it was the first to be truly modern and to develop on an international scale.[8] The style continued to evolve into the fifteenth century, developing into a distinct aesthetic that dominated northern Renaissance art and significantly influenced the direction of European landscape painting. In the late fourteenth century, when European artists were frequently travelling between royal courts and moving throughout different regions, a particular style of painting now referred to as the International Gothic or 'court' style emerged as a refined blend of both Gothic and Italian Trecento art.[9] This style is characterized by a striving for naturalistic visual effects, rich and vibrant colours, surface textures, and decorative design. There was often a tendency towards a fairytale-like beauty and courtly elegance. An important feature of this style is a unified picture space that combines traditional Gothic and Italian compositional elements. This Late Gothic style, designed for a refined and sophisticated audience, was especially popular north of the Alps, in northern Italy, and in Italian courts.[10]

One of the most significant advancements to occur in European painting during the high medieval period was the introduction of the concept of naturalism. This was a

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[7] M. Camille, *Gothic Art: Visions and Revelations*, p. 9; Paul Frankl, *The Gothic: Literary Sources and Interpretations Through Eight Centuries* (Princeton University Press, 1960), pp. 290–92. Andrew Martindale, *Gothic Art: From the Twelfth to Fifteenth Centuries* (Praeger, 1967), pp. 7, 11–12. Eric Michaud and Hèléne Amal, 'Barbarian Invasions and the Racialization of Art History', in *October*, 139 (2012), pp. 59-76 (pp. 67–68). James Snyder, *Medieval Art: Painting, Sculpture, Architecture, 4th–14th Century* (Harry N. Abrams, 1989), p. 343.

[8] M. Camille, *Gothic Art: Visions and Revelations*, p. 12. Otto von Simson, *The Gothic Cathedral: Origins of Gothic Architecture and the Medieval Concept of Order* (Princeton University Press, 1988), pp. 61–64. J. Snyder, *Medieval Art: Painting, Sculpture, Architecture*, p. 344.

[9] Erwin Panofsky, *Early Netherlandish Painting: Its Origin and Character*, 2 vols. (Westview Press, 1953, repr. Routledge, 2018), p. 20, 66–70.

[10] E. Panofsky, *Early Netherlandish Painting: Its Origin and Character*, pp. 51–74. Liana Castelfranchi Vegas, *International Gothic Art in Italy*, trans. by B. D. Phillips (Thames and Hudson, 1968), pp. 5–6.

new way of seeing and interpreting nature that was rooted in contemporary philosophy and religious thought. The writings of Aristotle, newly discovered in the West, had a major impact on the intellectual culture flourishing between the twelfth and thirteenth centuries. At this time, European art since the Early Christian era had been heavily influenced by Platonic idealism. This fostered the development of a visual language, culminating in the Romanesque style, that was built on idealized and abstract forms that signified, rather than imitated, artistic subjects in a highly stylized and decorative manner. Aristotelian philosophy, on the other hand, fostered an appreciation in the multitude of forms and individuality observed within the material world.[11] Aristotelian theories on the metaphysics of nature and reality influenced the direction of visual art by challenging existing ideas about the importance of visual experience. In a reversal of established ideologies, Aristotle placed vision above all other human senses, emphasizing that knowledge could only be obtained through visual perception of the material world. Aristotelian ideas were deeply assimilated within the medieval mind by theologians such as Thomas Aquinas, who wrote about the connection between vision and knowledge—and Roger Bacon, who pioneered the modern study of optics, founding his theories of the mechanism of sight on Aristotelian principles.[12]

In art, this newly awakened interest in the perceptible world helped to initiate the birth of what is sometimes called 'Gothic naturalism'. This was a new approach to art, characterized by a delight in visual reality and an emphasis on the accurate representation of nature as it can be observed by the human eye. In the Gothic North, the movement circulated first among French and English artists, and quickly spread all over Western Europe.[13] Max Dvořák, an art historian in the early twentieth century who wrote about Gothic naturalism, stated that the triumph of Gothic art was the concept of a new 'fidelity to nature.'[14] He argued that this achievement was not only based on a fidelity to direct observation, but also rooted in the spiritual and philosophical ideas of the age that were inherently shaped by medieval Christian beliefs. The new way of thinking about nature and visual experience effectively reframed the role of sensory perception as a means for religious experience.[15]

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[11] M. Dvořák, *Idealism and Naturalism in Gothic Art*, pp. 107–150. Duane H. D. Roller, 'Science and the Fine Arts: Reflections of Platonic Idealism and of Aristotelian Naturalism', *Leonardo*, 13.3 (1980), pp. 192–198. Lynn White, 'Natural Science and Naturalistic Art in the Middle Ages', *The American Historical Review*, 52.3 (1947), pp. 421–435 (pp. 424–428).
[12] M. Camille, *Gothic Art: Visions and Revelations*, pp. 21–25.
[13] M. Dvořák, *Idealism and Naturalism in Gothic Art*, pp. 94, 102, 106, 112, 127. Lynn White, 'Natural Science and Naturalistic Art in the Middle Ages', pp. 426–427.
[14] M. Dvořák, *Idealism and Naturalism in Gothic Art*, p. 94.
[15] M. Dvořák, *Idealism and Naturalism in Gothic Art*, pp. 30-32, 90, 95-98.

The foliated capitals and carved botanical forms found in many churches of northern France and England are among the earliest examples of art representing a burgeoning interest in the natural world. The stiff and pattern-like acanthus leaves that adorned Corinthian capitals from antiquity and continued through the Romanesque era began to be replaced as early as the late twelfth century with individualized stems and leaves enlivened with movement and variety. Early Gothic sculptors eventually dispensed with the acanthus type altogether in favor of lifelike foliage that increasingly began to represent identifiable leaves and plants that could have been observed in the local environment. At Soissons cathedral, the columns in the choir are topped with foliated capitals featuring two rows of realistic leaves identified as the perennial plant celandine. In contrast to the stiff, generalized acanthus forms seen in Romanesque design, the leaves here are deeply chiseled to emphasize a three-dimensional appearance, while the stems and veins add realistic detail and a sense of gentle movement.[16] Foliated bands and friezes are found in Gothic cathedrals throughout France, such as the one that encircles the interior nave of Amiens cathedral. The south portal of the west facade of Reims cathedral features a foliated band of highly realistic grape leaves and bunches of grapes carved into the stone.[17]

Some of the most remarkable examples of naturalistic botanical carvings are found throughout England with most cases dating to the late thirteenth century. The leafy decorations of Southwell Minster have received the most attention by scholars for their accurate representation of individual plants, where over ninety different species have been identified.[18] In his classic study on the ornamental plant sculpture of the Southwell chapter house in England, Nikolaus Pevsner praises the sculptors for their ability to balance the naturalistic and the decorative elements in the foliated capitals. This harmonious union between realism and decorative effect was one of the hallmarks of Gothic design, a feature that distinguishes it from Italian naturalism rooted in scientific illustration. Many of the leaves and plants here are identifiable by species, yet the overall integrity of the pattern remains, even in spite of the inclusion of naturalistic movement such as the turning of the leaves and swaying of branches.[19] According to Otto Pächt, naturalistic leaf sculpture reached its peak in England by the late fourteenth

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[16] M. Camille, *Gothic Art: Visions and Revelations*, pp. 134–135. Jack Goody, *The Culture of Flowers*, (Cambridge University Press, 1993), pp. 151–153; L. White, 'Natural Science and Naturalistic Art in the Middle Ages', pp. 426–427.

[17] Mailan S. Doquang, *The Lithic Garden: Nature and the Transformation of the Medieval Church* (Oxford University Press), pp. 1, 7, fig. 1.9, 1.10.

[18] Jean Givens, 'The Garden Outside the Walls: Plant Forms in Thirteenth-Century English Sculpture' in *Medieval Gardens*, ed. by Elisabeth B. MacDougall (Dumbarton Oaks, 1986), pp. 189–198 (pp. 189–192).

[19] Nikolaus Pevsner, *The Leaves of Southwell* (Penguin Books, 1945), pp. 18–20.

century and never progressed further than as a limited design element adorning architectural structures. The movement towards botanical realism endured longer in two-dimensional art and was more prolific in painting and drawing than in sculpture. Throughout the fourteenth century its early influence can be discerned more in manuscript illustration than in any other place.[20] In turning to the history of botanical illustration, it is necessary to first look to the classical tradition of scientific nature studies in Italy.

Botanical nature studies in manuscripts

Naturalistic representations of plants in medieval manuscripts followed a long tradition of botanical illustration that originated in the ancient world within herbal treatises that can be traced to the middle of the second millennium BC. Until the thirteenth century, there were two primary herbal texts traditionally accompanied with illustrations that were available throughout the Latin and Arabic speaking worlds—the medical treatise, *De materia medica* of the Greek physician Dioscorides and the Latin *Herbarius* of Psuedo-Apuleius Platonicus. Practical manuals on botanical knowledge were used in ancient times primarily for the identification of plants used in the practice of medicine. In classical botanical illustrations, plants were presented as tools for identification of the particular species of plant with a visual emphasis on basic elements such as the type of leaves, the general shape of flowers, and the growth habit. The early plant illustrators were more interested in scientific accuracy, rather than aesthetic quality, and for practical purposes they aimed to portray the subjects in a manner that allowed them to be recognized for their characteristics and individual parts. Naturalism was important for accuracy of form, though the need for representation of individual parts called for a schematic approach that often resulted in flattened diagrammatic images. During the Early Middle Ages, as the knowledge of botanical science waned, plant illustrations became more stylized and less visually representative of the subjects over time.[21]

The continuation of the herbal text tradition during the Early Middle Ages was mainly due to monastics who were not only the most literate group in society, they were also the primary healers and caretakers of the sick. The purpose of herbal manuals at

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[20] Otto Pächt, 'Early Italian Nature Studies and the Early Calendar Landscape', pp. 13–47 (pp. 146, 150–3).

[21] Claudine A. Chavannes-Mazel, 'Introduction' in *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600–1600*, ed. by Claudine A. Chavannes-Mazel and Linda IJpelaar (Amsterdam University Press, 2022), pp. 12–35 (pp. 14–15). Minta Collins, *Medieval Herbals: The Illustrative Traditions* (University of Toronto Press, 2000), pp. 25–26, 28.

this time was to collect and preserve knowledge on recipes and remedies and on the various uses and healing properties of plants. Many texts did not include illustrations at all. When they did, they mainly served as a tool of remembrance and to provide a basic reference for an experienced practitioner.[22] Throughout the Early Middle Ages, plant illustrations were mainly copied from classical sources, without direct observation, and over time their usefulness deteriorated as drawings were misinterpreted and corrupted from the original sources.[23] As growing numbers of physicians, lay practitioners, and general readers became interested in practical knowledge, this fostered a demand for greater accuracy in the depiction of botanical specimens, thus facilitating the transition towards closer observation and better representation of plants.[24]

At the end of the eleventh century, the Norman court in Salerno, influenced by the new influx of Arabic science, became a major center for the study of medicine and it was there that the illustrated herbal text was revived for the use of medieval physicians and students of medicine.[25] The text written in Salerno in the twelfth century, *Tractatus de herbis* or *Secreta Salernitana*, was likely illustrated and widely copied as early as 1300. According to Pächt, an early illustrated edition of the Salerno herbal in the British Museum[26] is the earliest known text from the Middle Ages to attempt an accurate rendering of botanical subjects based on direct visual observation.[27] Minta Collins explains however, though the illustrations in the Salerno herbal may represent the earliest extant medieval depictions of plants that were at least partly studied from life, they can not be considered completely naturalistic in their approach, since the artist 'was not concerned with light, shade, modelling, or complex growth patterns, but with identifiable details.'[28] Aside from rare cases such as the Salerno herbal, most botanical illustrations until the late fourteenth century continued to be either copied from classical sources, or to draw on the early medieval tradition—with images based on decorative motifs and symbolic understanding rather than visual study. By the end of the century, artists began to experiment more with lifelike representations made from direct observation, emphasizing the precise details and defining characteristics of plants. By this time, in the courts of northern Italy, richly illustrated texts depicting

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[22] C. Chavannes-Mazel, 'Introduction' in *The Green Middle Ages*, pp. 14, 17, 27–28.
[23] J. Goody, *The Culture of Flowers*, p. 97. O. Pächt, 'Early Italian Nature Studies', p. 27.
[24] C. Chavannes-Mazel, *The Green Middle Ages*, p. 26.
[25] C. Chavannes-Mazel, *The Green Middle Ages*, p. 26. M. Collins, *Medieval Herbals: The Illustrative Traditions*, p. 26, 245. O. Pächt, 'Early Italian Nature Studies', pp. 25–28.
[26] London, British Library, MS Egerton 747 (Tractatus de herbis).
[27] O. Pächt, 'Early Italian Nature Studies' p. 28–29.
[28] M. Collins, *Medieval Herbals: The Illustrative Traditions*, p. 255.

botanical objects and scenes of nature were created as luxury works of art made for intellectually inclined patrons.[29]

In the late fourteenth century, botanical illustrations began to exhibit a greater sense of realism and individuality not seen before in manuscript illumination. Pächt traces the earliest evidence of this development to a northern Italian manuscript, the *Carrara Herbal*.[30] The manuscript was commissioned by Francesco Carrara the Younger in the 1390s, and it was produced by an anonymous Paduan artist before the end of Francesco's reign as lord of Padua in 1403. By this time the university in Padua had become the center of medical science in much the same way as Salerno had once been. Pächt argues that it was also the place where for the first time an artist painted a living plant with the intention of representing it in an illusionistic manner. What sets the drawings in the *Carrara Herbal* apart from earlier examples is that the anonymous Paduan artist not only drew them from life, but also showed them to exist in space just as they do in their natural habitat. Additionally, the plant forms were artistically arranged on each page, and according to Pächt, 'we have reached the point where impressions from life, from the outer world, can give the primary impulse for artistic imagination and invention'. However, he goes on to say that this breakthrough had little effect on landscape painting by Italian artists outside of Lombardy.[31]

Plants and animals in manuscript illuminations

The inclination towards naturalistic detail that was seen in botanical forms also began to appear with animal subjects in two-dimensional artwork as early as the middle of the thirteenth century. A famous treatise on falconry, *De arte venandi cum avibus*, written by Holy Roman Emperor and King of Sicily, Frederick II (1194–1250) between 1244 and 1250 in Palermo, is the earliest text that seems to have attempted to include naturalistic animal motifs in manuscript decoration.[32] This text served as the most complete manual of falconry and ornithology produced during the Middle Ages and was copied extensively and translated into French by the end of the century. The original six volume work produced by Frederick is lost, but several partial copies exist. A two volume codex in the Vatican from the late thirteenth century is embellished with a highly developed pictorial programme closely following the text and it is thought to

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[29] O. Pächt, 'Early Italian Nature Studies' p. 28–29.
[30] London, British Library, MS Egerton 2020 (Carrara Herbal).
[31] O. Pächt, 'Early Italian Nature Studies', pp. 30–32. Sarah R. Kyle, *Medicine and Humanism in Late Medieval Italy: The Carrara Herbal in Padua* (Routledge, 2017), pp. 3, 23–26.
[32] Vatican City, Biblioteca Apostolica Vaticana, MS Pal. Lat. 1071 ('De arte venandi cum avibus'). O. Pächt, 'Early Italian Nature Studies', pp. 22–24.

be a close duplicate to the original. It contains an impressive array of naturalistic and carefully rendered illustrations, including over nine hundred lifelike depictions of individual birds as well as numerous other animals, such as horses, foxes, and fish. The details of the birds in flight and other positions are reproduced with such clarity and accuracy that they were undoubtedly designed by someone who had observed their anatomy and movements. These illustrations were almost certainly copied directly from the illustrations in the original text, which were likely produced under Frederick's direct guidance and possibly even drawn by either the emperor or his son, Manfred.[33]

In England and France, realistic birds and other animals appeared regularly in religious books of devotion, as early as the beginning of the fourteenth century. The most notable examples were East Anglian psalters, where marvelously detailed birds adorn the margins of illuminated texts such as the *Alphonso Psalter* and the *Bird Psalter*.[34] The *Bird Psalter*, made around 1309, contains fifty-two figures of birds and over forty of these can be easily identified by species due to such recognizable characteristics as colouration, patterning, and plumage. In addition, there are other naturalistically represented animals such as rabbits, fish, and a butterfly identified as a *Pieris brassicae*.[35] Unlike *De arte venandi cum avibus* and other Italian texts, these English books were not created for any practical or didactic purpose. Instead, the illustrations were purely ornamental and they were designed with a clear style and artistic intent.

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[33] Charles H. Haskins, 'The 'De arte venandi cum avibus' of the Emperor Frederick II', *The English Historical Review*, 36.143 (1921), pp. 334–355 (pp. 339–340). Charles Vaurie, 'Birds in the Prayer Book of Bonne of Luxembourg', *The Metropolitan Museum of Art Bulletin*, 29.6 (1971), pp. 279–283 (p. 279). Casey A. Wood and F. Marjorie Fyfe, 'Translators' Introduction' in *The Art of Falconry: Being the De Arte Venandi cum Avibus*, trans. and ed. by Casey A. Wood and F. Marjorie Fyfe (Stanford University Press, 1943), pp. xxxv–xlx (pp. xxxviii–xxxix, lxii). Casey A. Wood and F. Marjorie Fyfe, 'Manuscripts and Editions of the "*De Arte Venandi cum Avibus*"' in *The Art of Falconry*, pp. lvii–lxxxvii (pp. lxix–lxx).

[34] Pächt admits that it is possible that these were not influenced by the Italian treatise, *De arte venandi cum avibus*, since it appears that they were drawn from life. However, he brushes away the likelihood of the notion that the bird portraits could be a Northern invention with an uncertain claim that there must have been a Southern prototype based on similarities between the English Pepysian sketchbook and Lombard drawings. Since this sketchbook and the Lombard models in question date only as far back as the late fourteenth century, it is not clear how this lessens the possibility of an English origin for the East Anglian bird pictures created in the early fourteenth century. O. Pächt, 'Early Italian Nature Studies', pp. 19–20.

[35] Cambridge, Fitzwilliam Museum, MS 2-1954 (Bird Psalter). G. Evelyn Hutchinson, 'Attitudes toward Nature in Medieval England: The Alphonso and Bird Psalters' *Isis*, 65.1 (1974), pp. 5–37 (pp. 8–13).

Elements of East Anglian illumination art were introduced to France by Jean Pucelle, a manuscript illuminator and the master of an important workshop who is documented in Paris from 1319, where he was active until his death in 1334. He is recognized for introducing both foreign and novel pictorial elements to the art of painting in France.[36] He is most often remembered as being the earliest French painter to adopt Italian techniques such as perspective and the modeling of light to represent three-dimensionality. Pucelle also excelled with his use of naturalistic elements and decorative motifs that he derived from English artistic traditions. One of his innovations was the refinement of marginal decoration, specifically his adaptation of the *bas-de-page*, a pictorial device that originated in English psalters during the late thirteenth century. The term *bas-de-page* means 'bottom of the page', and refers to the unframed pictures below the text. Pucelle's modification was to employ this graphic feature as a means for depicting scenes with a continuous narrative, sometimes complete with setting and spatial arrangement. In doing so, he elevated this form of art for the first time into a more refined picture space, where the events of a story could take place beyond the usual historiated initial.[37]

Unlike the classically inspired botanical illustrations in scientific herbal texts, Pucelle's work succeeds at blending naturalistic details with decorative forms in a purely artistic format. The *Belleville Breviary* (*c*. 1323 to 1326) contains examples of some of the illuminator's most important introductions to French illumination art. In the margins, the painter creates a wonderful blend of decorative and naturalistic styles that includes both flora and fauna. Throughout the first volume of the text, there are sporadic instances where the conventional rinceau border morphs into a microcosm of living vegetation, complete with identifiable plants and realistic mammals, birds, and insects. On folio 24v, a grey dragonfly with black tipped wings hovers over a meticulously coloured pheasant. A blooming columbine plant springs from the border, while a monkey grasps a realistically painted butterfly by the wing. A flowering sweet pea vine with tiny buds, leaves, and curling tendrils is so accurately rendered it could be included in a scientific herbal text. Elsewhere in the volume one can find a peacock, an owl, a kingfisher and other birds. A masterfully drawn iris plant with blue-violet flowers, on folio 17v, was evidently copied from firsthand observation, as the artist has captured precisely every curve and fold of the petals in painstaking detail.[38] The flowers

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[36] E. Panofsky, Early Netherlandish Painting, pp. 27, 31.
[37] David Bland, *A History of Book Illustration: The Illuminated Manuscript and the Printed Book* (University of California Press, 1969), p. 60. Michelle P. Brown, *Understanding Illuminated Manuscripts: A Guide to Technical Terms* (Getty Museum, 1994), pp. 16, 51–52. E. Panofsky, Early Netherlandish Painting, pp. 31–32.
[38] Paris, Bibliothèque nationale de France, MS. lat. 10484, 2 vols. (Belleville Breviary).

are so beautifully rendered that Millard Meiss described these irises as 'a landmark in the history of still-life'.[39]

The lifelike depiction of birds and other animals in the margins of manuscript illuminations was a tradition that continued to flourish in the courts of France and England. It reached one of its highest points with the illuminations in the *Prayer Book of Bonne of Luxembourg*, produced in the workshop of Jean Pucelle, although most likely after the master's death. It contains almost two hundred birds and about forty different species can be identified, all of which could have been observed directly by the artists in France, either in gardens, the countryside, or as in the case of the rose-ringed parakeet, in an aviary. The parakeet is pictured four times and it is the only exotic bird in the illustrations, excluding the more obviously fanciful ones that are not identified as a particular species.[40] Considering that so many of these birds could be observed first hand by artists in France, it is almost certain that they were drawn and coloured from direct observation. The *Sherborne Missal*, an extraordinary manuscript that was created for the abbey of Sherborne in Dorset, England and can be dated to between 1399 and 1407, contains possibly the most beautifully painted birds in all of late medieval illumination. There are forty-four birds, most of them common to Dorset, throughout the manuscript, and all but three of these are labeled in English. This manuscript decoration can be attributed to five different hands, but the work was carried out under the supervision of master illuminator, John Siferwas, a Dominican friar from southern England. The artists have captured the birds' distinct colouring and plumage, their characteristic shapes, and have even imbued them with expressionistic eyes and facial features.[41]

Lombard nature studies and illumination

In the late fourteenth century, northern Italian illuminators, particularly in the Lombard region, began to embrace the naturalistic drawing techniques popular north of the Alps and in the Norman courts of Italy. Manuscript painters working for Visconti-ruled courts in Milan and Pavia demonstrated their appreciation for realistic details in their lifelike renderings of plants and animals, many of which were drawn

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[39] Millard Meiss, *French Painting in the Time of Jean de Berry: The Limbourgs and Their Contemporaries*, 2 vols. (Braziller, 1974), p. 182.

[40] New York, Cloisters, MS 69.86 (Prayer Book of Bonne of Luxembourg). Florens Deuchler, 'Looking at Bonne of Luxembourg's Prayer Book', *The Metropolitan Museum of Art Bulletin*, 29.6 (1971), pp. 267–278 (p. 267). G. Evelyn Hutchinson. 'Zoological Iconography in the West after A.D. 1200', *American Scientist*, 66.6 (1978), pp. 675–684 (pp. 677, 280–281). C. Vaurie, 'Birds in the Prayer Book of Bonne of Luxembourg', p. 281.

[41] London, British Library, MS Add 74236 (Sherborne Missal); Janet Backhouse, *The Sherborne Missal* (University of Toronto Press, 1999). pp. 5–6, 41, 53, 55.

from real life models. Lombard painters were widely recognized as specialists in the field of realistic animal representation. Their influence reached as far as France, Bohemia, and England, where animal motifs can be traced directly to Lombard models. A book of drawings (*taccuino di disegni*), produced in the workshop of Giovannino de' Grassi (*c.* 1350–1398), a leading architect and illuminator in northern Italy, is among the first great examples of naturalistic representations of animals, and it seems that a large number of these were drawn from direct observation. The Bergamo model book contains about sixty pages filled with beautiful renderings of animals, delicately drawn in silver-point or brush, and many are tinted with watercolour. The *taccuino di disegni*, sometimes referred to as a sketchbook, was more accurately a pattern or model book, a collection of finished drawings of various isolated subjects that could be used for artistic training or visual reference. A model book was a valuable asset in any medieval painter's workshop practice and those of Lombard origin were renowned for their expertly rendered subjects, especially that of birds and other animals.[42]

Giovannino de' Grassi contributed to one of the most exceptional manuscripts of the medieval era, the *Book of Hours of Gian Galeazzo Visconti*, or the *Visconti Hours*. He was responsible for the manuscript's first illuminations which he began working on around 1388.[43] The book of hours was created for Gian Galeazzo Visconti, ruler of Milan from 1385, and the first Duke of Milan from 1395 until his death in 1402. Like generations of Visconti rulers before him, Gian Galeazzo was a patron of the arts and encouraged scholarly pursuits and learning within his court and throughout Milan and Pavia. Close family relations through marriage with members of the French royal family meant that French art and literature had a strong presence within his court. Gian Galeazzo's enthusiasm for book collecting and his patronage of the art of manuscript illumination rivaled that of his brother-in-law Jean, Duke of Berry. It is due to his patronage that Lombardy became one of the great centers of manuscript production in the late fourteenth century.[44]

The duke was an avid hunter and an owner of a menagerie with wild and exotic animals that Giovannino would have likely been able to study. The courtly interest in hunting, animals, and natural history likely had an effect on the artist who depicted

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[42] Bergamo, Biblioteca Civico Angelo Mai, MS VII. 14; Francis Ames-Lewis, Drawing in Early Renaissance Italy (Yale University Press, 1981), pp. 63–68. O. Pächt, 'Early Italian Nature Studies', pp. 13–18, 20. L. Vegas, *International Gothic Art in Italy*, pp. 19–20.
[43] Edith Kirsch, *Five Illuminated Manuscripts of Giangaleazzo Visconti* (Pennsylvania State University Press, 1991), pp. 39–40, 44–45. Millard Meiss, 'Introduction', in *The Visconti Hours*, eds. Millard Meiss and Edith W. Kirsch (George Braziller, 1972), pp. 2–28 (pp. 7, 12).
[44] E. Kirsch, *Five Illuminated Manuscripts*, pp. 2–3, 8, 11. M. Meiss, 'Introduction', in *The Visconti Hours*, pp. 7–9.

plants and animals in a lifelike way.[45] The evolution of naturalism from a practical to an aesthetic function required more than the mere introduction of this practice to book illustration. The transformation would not have been complete without the merging of naturalism with artistic purpose and the integration of realistic nature motifs within narrative settings and scenic environments. The increased awareness of the relationship between subject and setting was a unique feature that emerged in the fourteenth century with northern Italian manuscript painting. Giovannino's drawings and painted miniatures demonstrate this better than any others.[46]

Giovannino was also influenced by northern art and the emerging court style. According to Meiss, the artist drew on both French and Bohemian painting for his work, but he was the first Italian painter of the fourteenth century to create his own unique style of manuscript painting. The illuminations in the *Visconti Hours* are striking in their originality, merging medieval decorative aesthetics with naturalistic painting to develop a new pictorial language that inspired manuscript artists in France as well as Italy. In the borders the artist used both foliated and geometric patterns to design his own motifs and integrated those with delicately painted animals nestled in their own lifelike landscapes. In many of the volume's animal drawings, Giovannino included beautifully rendered natural environments that evoke a sense of place and atmosphere. Rather than depicting the animals in a stage-like setting, they are portrayed as living beings, resting amidst soft blades of grass or roaming on the earthy terrain. Moving away from conventional methods, he presented them as if they were being viewed within their own habitats, and then he combined this naturalism with medieval sensibilities that valued the overall decorative quality of the whole surface.[47] Giovannino's method of applying a delicate glaze of tinted oil over gold leaf to create different luminous effects and his highly attuned sense of color harmonies had an effect on Franco-French manuscript painters, especially the Boucicaut Master, in the early fifteenth century. Giovannino's ability to leverage the balance of colour and light and to represent surface sheens that alternated between soft translucency, brilliant luminosity, and dullness gave his illuminations in the *Visconti Hours* a unique beauty and elegance.[48]

Exploring the philosophical and cultural environment in which the Gothic style developed gives a broader perspective to underlying concerns that helped shape the stylistic methodology and encouraged the observational approach to capturing naturalistic details. Encouraged by noble patrons, the International style remained engaged with these foundational interests. Giovannino was one of the first to merge the

[45] M. Meiss, 'Introduction', in *The Visconti Hours*, pp. 9–11.
[46] O. Pächt, 'Early Italian Nature Studies', pp. 32–38.
[47] Florence, Biblioteca Nazionale Centrale, MS Banco Rari 397 and MS Landau-Finaly 22 (Visconti Hours). M. Meiss, 'Introduction', in *The Visconti Hours*, pp. 12, 16.
[48] M. Meiss, 'Introduction', in *The Visconti Hours*, pp. 14–17.

Gothic naturalism and decorative quality that was so prominent in Northern art with the Italian inclination to develop the spatial representation and setting. His accomplishments set the stage for the Lombard school to dominate the field of nature studies between the late medieval to early Renaissance period. The practice of direct observation and rendering the natural environment were foundational innovations that advanced the development of landscape painting.

2. Light and Colour in Early Landscape Painting

Introduction

With the inception of naturalism in Gothic painting, artists began to gain a more sophisticated understanding of the interaction between light and colour from the practice of direct observation and experimentation with new techniques. The metaphysical understanding of light and luminosity played a part in the formation of an aesthetic that placed a high value on light as a conduit of divine knowledge and as the essence and source of all beauty. In the early fourteenth century, manuscript illuminators introduced advanced painting techniques for defining volume and space with the use of light and shade. Around the beginning of the fifteenth century, Flemish and Dutch manuscript painters working for aristocratic French patrons made important discoveries in the depiction of naturalistic lighting, colouring, and aerial perspective.

Light was also increasingly used as a way to convey symbolic meaning and to add interest to certain areas of the composition. Franco-Flemish miniaturists devised new methods to increase vibrancy while expanding the colour palette. The incorporation of new blending materials for mixing and layering colours allowed painters for the first time to alter hue and value without a loss of chromatic intensity. Franco-Flemish miniaturists drew on longstanding Flemish practices in panel painting, while also assimilating Italian spatial considerations and Lombard techniques. They were among the first to fully explore ways to use translucent glazing to expand the possibilities of coloured pigments. These painters paved the way for the mastery of oil painting by Early Netherlandish painters. Italian painters with training or contacts in the North began to devise their own methods for working with oil paint. Leonardo da Vinci and Giovanni Bellini applied both Northern and Italian methods in their work and were especially influential in the advancement of the art of painting landscapes.

Medieval metaphysics of light and colour

One of the most important innovations in naturalistic representation that occurred during the Late Middle Ages was the increased use of light and shadow as a primary means to describe space and form. The symbolic meaning of light in Christianity played a large part in this development. In the Gothic period, a metaphysical understanding of light and luminosity influenced certain aspects of architecture and painting.[49] The concept of the connection between light and divinity has roots in ancient Mediterranean religion and classical philosophy, and it was a central aspect of Christian teachings. Classical ideas about the phenomenon and nature

[49] Millard Meiss, 'Light as Form and Symbol in Some Fifteenth-Century Paintings' *The Art Bulletin*, 27.3 (1945), pp. 175–181 (p. 175).

of light, which originated with Plato, were formalized in Christian theology by St. Augustine. In the Early Middle Ages these ideas were revived with the translation and commentaries on Neoplatonic writings of Psuedo-Dionysius, and in the twelfth and thirteenth centuries they were expanded on by Scholastic theologians such as Robert Grosseteste, St. Bonaventure, and St. Thomas Aquinas. To medieval philosophers, light was a metaphysical reality and a reflection of divine order and perfection. Luminosity was thought to be the conduit of divine knowledge and the visible embodiment of the creative principle that acts as a mediator between the spiritual and material worlds. It was believed that light was the closest thing to pure form, so the amount of light a thing possessed could be indicative of its value and purity. In the Gothic mind, that which was bright or clear was akin to visual beauty. Hugh of St. Victor and St. Thomas Aquinas both ascribed luminosity as one of the two main characteristics of beauty, the other being proportion or measure.[50] Abbot Suger, the mastermind who conceived of the first Gothic abbey, the abbey church of St. Denis in Paris, famously wrote about the possibility of an 'anagogical' spiritual ascent or illumination through aesthetic experience, particularly through the visual experience of light and colour.[51]

Umberto Eco describes the medieval love of light and colour as a characteristic of a 'qualitative aesthetic experience', as opposed to a 'quantitative aesthetic experience', which was based on measure, such as the enjoyment of musical harmony. It was thought that there was an essential character inherent within individual colours, a concept with Neoplatonic overtones that Eco describes as 'chromatic decisiveness'.[52] For St. Bonaventure, light was 'the principle of all beauty, not only because it is delightful to the senses, but also because it is through light that all the variations in colour and luminosity, both in heaven and on earth, come into being.'[53] It is difficult to imagine now, but the interiors of Gothic cathedrals were often painted in polychrome decoration.[54] In religious writings as early as the eleventh century, the passage of

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[50] Umberto Eco, *Art and Beauty in the Middle Ages*, trans. Hugh Bredin (Yale University Press, 2002), pp. 43, 47–51. M. Meiss, 'Light as Form and Symbol in Some Fifteenth-Century Paintings', pp. 175–81. Erwin Panofsky, *Abbot Suger: On the Abbey Church of St.–Denis and its Art Treasures*, 2nd edn. (Princeton University Press, 1979). Otto von Simson, *The Gothic Cathedral: Origins of Gothic Architecture and the Medieval Concept of Order* (Princeton University Press, 1988), pp. 50–52.

[51] Umberto Eco, *Art and Beauty in the Middle Ages*, pp. 13–15. E. Panofsky, *Abbot Suger: On the Abbey Church of St.–Denis*', pp. 17–24, 36–37. O. Simson, *The Gothic Cathedral*, pp. 64, 106–10, 114–27, 133–35.

[52] U. Eco, *Art and Beauty in the Middle Ages*, pp. 43-44.

[53] U. Eco, *Art and Beauty in the Middle Ages*, p. 50.

[54] Ann Sassin, 'Colouring the Dark Ages: Perceptions of Early Medieval Colour in Popular Culture', in *Digging into the Dark Ages: Early Medieval Public Archaeologies*. ed. by Howard Williams and Pauline Clarke (Archaeopress, 2020), pp. 31–52. Géraldine Victoir,

sunlight through coloured glass was used as a metaphor to explain the Annunciation and Incarnation.[55] During the twelfth and thirteenth centuries, the symbolic understanding of light and its significance as a theological concept began to find expression in painting. The representation of divine light was shown as linear rays of golden light as early as the twelfth century in images of the Annunciation, the Stigmata of St Francis, and 'to show the personal luminescence of Christ'.[56] The Gothic architectural style was designed to maximize the amount of natural light within the interior of a church, effectively turning the massive walls of the Romanesque church into thin, high walls that were virtually transparent due to the continuous placement of windows. The combination of transparent and coloured glass with the intricate fretwork of the windows created a dramatic interplay of light and colour. Stained glass windows flooded the sacred space with a full spectrum of colours, transforming the interior with a vibrant, ethereal, and otherworldly atmosphere. The visual effect of the Gothic cathedral was a complete aesthetic experience that embodied the importance of light and colour in medieval taste. This was a concern that was integrated within the earliest progression of landscape painting.[57]

Light and shadow in Parisian manuscript painting, before the fifteenth century

The heightened interest in using light and shadow for naturalistic representation can be seen in the use of chiaroscuro and grisaille techniques by Parisian illuminators in the fourteenth century. The French manuscript illuminator known as Master Honoré introduced a new approach to the representation of volume to northern European painting with his *Breviary of Philip the Fair*, produced around 1295. In the manuscript's only full-page miniature, which depicts two scenes from the life of David, the contours in the figures are modeled with variations of strong light and deep shadows. The volumetric figures are rendered with a close attention to the textural surface, giving them a three-dimensional quality not seen before in Northern painting. The overall effect has a sculptural quality and has been compared many times to French Gothic

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'Nature in Architecture: The Vegetal World and Architectural Polychromy in Northern France from the Mid-Twelfth to Mid-Fourteenth Century', in *Art and Nature Studies in Medieval Art and Architecture* (Courtauld Institute of Art, 2009), pp. 69–79.

[55] M. Meiss, 'Light as Form and Symbol in Some Fifteenth-Century Paintings', pp. 175–81.

[56] Anthony McGrath, 'Light, the Dominicans and the Cult of St. Thomas Aquinas', in *Colour and Light in Ancient and Medieval Art*, ed. by Chloë N. Duckworth and Ann E. Sassin (Routledge, 2018), pp. 145–58 (p. 146).

[57] U. Eco, *Art and Beauty in the Middle Ages*, pp. 13–15, 45–46; O. Simson, *The Gothic Cathedral*, pp. 114–26.

sculpture.[58] The method he used was an early example of 'chiaroscuro'. This is a modern term that refers to an artistic practice in which the depiction of form and contours are developed through the modeling of light and shadow. This basic technique was used occasionally in classical art, but was eliminated in the Byzantine style, where the emphasis on light and dark areas relied on strong contours made up of flat and linear patterns that did not represent volume in a natural or organic way. Chiaroscuro creates a more natural representation of shape and volume by softening the transitions of the tonal values and deemphasizing the linear contours.[59]

Giotto is usually credited with discovering this method, though the French illuminator Master Honoré applied this type of technique in the *Breviary of Philip the Fair* about a decade before it was used by Giotto in the frescos for the Scrovegni chapel in Padua (*c.* 1305). The Parisian illuminator Jean Pucelle used this technique in his *Hours of Jeanne d'Evreux* (*c.* 1325–1328), and he advanced the concept further by also painting in 'grisaille', a method related to chiaroscuro, in which the artist uses a palette of monochromatic greyish pigments to define form and to build value and tone. Before Pucelle, grisaille was used by stained glass artists from the twelfth century as a means of decorating without colour, in order to allow more light to penetrate certain interior spaces.[60] Outside of stained glass, this method was used for the first time in painting by Giotto, for modeling figures in his *Seven Vices and Virtues* cycle in the Scrovegni chapel.[61] In his 'Annunciation' miniature, Pucelle used lights and darks to represent highlights and shadows, accentuating the Gothic curvilinear forms with subtle gradations of tone,

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[58] Paris, Bibliothèque nationale de France, MS lat. 1023 (Breviary of Philip the Fair), fol. 17v. Charles D. Cuttler, *Northern Painting: From Pucelle to Bruegel/ Fourteenth, Fifteenth, and Sixteenth Centuries* (Holt, Rinehart, and Winston, 1968), pp. 8–9. E. Panofsky, *Early Netherlandish Painting*, pp. 15. David M. Robb, *The Art of the Illuminated Manuscript* (A.S. Barnes, 1973), pp. 233–34.

[59] Frances Ames-Lewis and Joanne Wright, *Drawing in the Italian Renaissance Workshop* (Victoria and Albert Museum, 1983), pp. 178, 200, 208. Marcia B. Hall, *Color and Meaning: Practice and Meaning in Renaissance Painting* (Cambridge University Press, 1992), pp. 94, 104–05, 237.

[60] New York, Cloisters Collection, MS 54.1.2 (Hours of Jeanne d'Evreux). Sharon Lacey, 'Tinted drawing: Translucency, luminosity, and lumen vitae', in *Colour and Light in the Ancient and Medieval World*, ed. by Chloë N. Duckworth and Ann E. Sassin (Routledge, 2018), pp. 159–171, (p. 164). E. Panofsky, *Early Netherlandish Painting*, pp. 27, 29. Whitney S. Stoddard, *Art and Architecture in Medieval France: Medieval Architecture, Sculpture, Stained Glass, Manuscripts, the Art of the Church Treasuries* (Westview Press, 1972), p. 267. D. Robb, *The Art of the Illuminated Manuscript*, p. 250. K. Gould, 'Jean Pucelle and Northern Gothic Art: New Evidence from Strasbourg Cathedral', *The Art Bulletin*, 74.1 (1992), pp. 51–74 (p. 66).

[61] Giotto, *Seven Vices and Virtues* (*c.* 1305), fresco. Scrovengi Chapel, Padua. D. Robb, *The Art of the Illuminated Manuscript*, p. 250.

while reserving most of the colour for the architecture and setting. In this picture Pucelle has introduced another advanced concept; for the first time in Northern painting, a figure is placed in a perspectival setting.[62] Along with the linear elements, he played up the full potential of light as a means for depicting forms as well as perspective, and thus initiated a new system of designing that relied heavily on the application of light and shadow to create the illusion of spatial depth as well as form. The shining luminosity of the highlights and the deep shading used to model the figures and their clothing creates such a naturalistic but dramatic contrast that the figures seem to be solid silhouettes projecting into space. Light alone is used to give the effect of true solidity to the figures and enhances the sense of their spatial existence.[63]

Colour and atmosphere in Flemish and Dutch manuscript painting

The next major advancement in lighting techniques came from the observation of the effects of light and colour within the landscape, especially at different times of the year and under different atmospheric conditions. This was pioneered in the early fifteenth century by Flemish and Dutch illuminators working in France who developed a range of techniques to produce greater variations in tone and colour, which helped to create the illusion of space and atmosphere. The anonymous Flemish painter known as the Boucicaut Master, named for his most celebrated work, the *Hours of the Maréchal de Boucicaut*, was an illuminator based in Paris at the start of the fifteenth century. This illuminated manuscript is one of the finest examples of International Gothic miniature painting that has survived. It was produced between 1400 and 1411, and contains forty-one well preserved, full-page miniatures. Many of these feature lush, idyllic landscapes with intricate background details that combine vibrant colours with linear

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[62] Cloisters, MS 54.1.2, fol. 16r. E. Panofsky, *Early Netherlandish Painting*, pp. 27, 29. Millard Meiss, *French Painting in the Time of Jean De Berry: The Late Fourteenth Century and the Patronage of the Duke* (Phaidon, 1967), pp. 100, 141. D. Robb, *The Art of the Illuminated Manuscript*, p. 274. W. Stoddard, *Art and Architecture in Medieval France*, pp. 347–48. There is no evidence, but it is acknowledged by most art historians that Jean Pucelle very likely visited Italy, specifically Siena, where he saw the work of Duccio. His 'Annunciation' is clearly modeled on Duccio's predella scene of the same subject. It may not be as likely that he would have seen Giotto's frescoes in Padua in order to copy his use of grisaille. However, Karen Gould makes a convincing argument for the possibility of Pucelle's involvement in the design of stained glass panels in Strasburg, which brings up the possibility that he could have known the technique as a method used in stained glass production. See K. Gould, 'Jean Pucelle and Northern Gothic Art' p. 66.

[63] M. Meiss, *French Painting in the Time of Jean de Berry: The Late IV Century and the Patronage of the Duke*, pp. 140–41; E. Panofsky, *Early Netherlandish Painting*, p. 29. W. Stoddard, *Art and Architecture in Medieval France*, pp. 346–48.

perspective and decorative elements. One of the most distinctive features found in the miniatures of the *Boucicaut Hours* is the naturalistic landscapes that act as a setting for the narrative with realistic spatial relationships between the figures and the world they inhabit. The artist seems to have been intimately familiar with Sienese and Lombard art. In particular, he appears to have absorbed and built upon the discoveries made by Giovannino de' Grassi with his work in the *Visconti Hours*.[64] [65]

The innovative approach to painting detailed landscapes within full-page miniatures had an immediate and lasting influence on the direction of manuscript illumination and landscape painting. While the Boucicaut Master skillfully incorporated the linear-based perspectival techniques he learned from Italian art, he relied more on his own visual observation than scientific principles. In doing so, he perceived that when looking towards a distant horizon, colours begin to lose their saturation, and details become less defined the further the distance increases. Thus, for the first time since the Roman period, aerial perspective was rediscovered and applied within the miniatures in the *Boucicaut Hours*.[66] The painter also used light to create interest within the scene and to draw attention to details of nature. The miniature for the 'Visitation' in the *Boucicaut Hours* includes delightful elements such as a swan floating on the lake and sheep grazing in the distant hills. In this picture, the artist has thoughtfully used the sunlight as a fairly consistent light source on the landscape in the background. The sun's golden beams cut through an atmospheric haze to shine on the hills and rooftops in the distance. The eye is invited to linger on the light shimmering on the ripples of the water and lighting up the tops of the trees with flecks of gold.[67] The foreground does not share the same light source, but the painter has not completely reverted to the conventional stage lighting that would have shown the entire back area of the main setting gradually darkening. Instead, he selectively used this technique to create a shadow of muted green on the ground beneath where the figures are positioned, thus

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[64] Paris, Musée Jacquemart-André, MS 2 (Hours of the Maréchal de Boucicaut). Millard Meiss, *French Painting in the Time of Jean de Berry: The Boucicaut Master* (Phaidon, 1968), pp. 15–18, 66–68. M. Meiss, *French Painting in the Time of Jean de Berry: The Limbourgs and their Contemporaries*, p. 245; E. Panofsky, *Early Netherlandish Painting*, pp. 53–61.

[65] The painter may have accompanied his patron, the Maréchal de Boucicaut, on one of his visits to the Visconti court in the early years of the fifteenth century, where he could have seen the work of Giovannino.The maréchal served as governor of Milan in 1409 and of Genoa from 1401 to 1410, and it is likely that he brought his favorite artists and books along with him. E. Kirsch, *Five Illuminated Manuscripts of Giangaleazzo Visconti*, pp. 36–37. Paula Nuttall, *From Flanders to Florence: The Impact of Netherlandish Painting, 1400–1500* (Yale University Press, 2004), p. 17.

[66] Millard Meiss, *French Painting in the Time of Jean de Berry: The Boucicaut Master*, pp. 14–18. E. Panofsky, *Early Netherlandish Painting*, p. 57.

[67] Musée Jacquemart-André, MS 2, fol. 65.

giving them a more substantial area to stand on. Like Giovannino, the Boucicaut Master excelled at depicting the realistic relationship between subject and setting, allowing the landscape to function as a narrative background in which the subjects seemed to truly exist.

The artist of the *Boucicaut Hours* also experimented with ways of increasing luminosity and the chromatic effects of gold and silver with the use of layering techniques developed by Giovannino de' Grassi. The northern illuminator evidently shared Giovannino's fascination with the interaction of light and colour, and he adopted the Lombard painter's method of applying translucent coloured glazes over gold and silver to create variations in luster and colour. He played with varying levels of transparency for a more dynamic overall effect, building upon the glazing techniques developed by Giovannino to manipulate gold reflections with alternating layers of translucent glazes and metallic emulsions.[68] The illuminator of the *Boucicaut Hours* displayed such a unique virtuosity in the interaction of coloured pigments and metallics that Meiss asserts this feature is a 'fundamental category' of colour in the pictures. The 'rare and exquisite beauty' of the Boucicaut miniatures was one of the most successful examples of the International Gothic penchant for combining naturalism and decorative elements in a harmonious way.[69] One of the distinctive marvels of these miniatures is the presence of the huge, brilliant sun on many of the folios, shining in burnished gold with light rays scintillating down into a pattern that Meiss describes as, 'celestial fireworks'. These are not meant to appear realistic; they are symbolic, visionary representations of heavenly bodies that serve as expressions of the emanation of a heavenly light.[70]

The Limbourg brothers—Paul, Herman, and Jean de Limbourg—were from Nijmegen, a city in the Duchy of Guelders in the Netherlands.[71] Their maternal uncle was the painter Jean Malouel, who held the title *valet de chambre* for Duke Philip the Bold of Burgundy. He seems to have helped arrange for at least two of the brothers, Herman and Jean, to apprentice with a Parisian goldsmith while they were still adolescents in 1399. Around 1402, Paul and Jean are documented in a contract to illuminate a *Bible moralisée* for the Duke of Burgundy, while they were presumably still no more than teenagers. Sometime after Philip's death in 1404, his brother, Jean, Duke of

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[68] M. Meiss, 'Introduction', in *The Visconti Hours*, pp. 2–28, (p. 15). M. Meiss, *French Painting in the Time of Jean de Berry: The Boucicaut Master*; pp. 15, 67–68. M. Meiss, *French Painting in the Time of Jean de Berry: The Late Fourteenth Century and the Patronage of the Duke*, pp. 123–24.

[69] M. Meiss, *French Painting in the Time of Jean de Berry: The Boucicaut Master*, p. 15.

[70] M. Meiss, *French Painting in the Time of Jean de Berry: The Boucicaut Master*, p. 14.

[71] Jean Longnon and Raymond Cazelles, 'Introduction' in *The Très Riches Heures of Jean, Duke of Berry*, trans. by Victoria Benedict (George Braziller, 1989), pp. 15–28 (pp. 19–21).

Berry, took all three of the brothers into his own household where they were evidently treated and compensated very well. Together they were the creators of two of the most celebrated illuminated manuscripts from the late medieval period, the *Belles Heures of Jean de France, Duc de Berry*[72], painted between 1405 and 1409, and the *Très Riches Heures du Duc de Berry*[73], produced between 1411 and 1416. Jean of Berry recognized the abilities of the young brothers and gave them ample freedom to experiment and cultivate their talents. Though their lives were presumably cut short by the plague in 1416, the Limbourg brothers produced some of the most treasured works of Late Gothic art. The calendar page illustrations for the *Très Riches Heures* have long been recognized as a pivotal step in the development of naturalistic scenery in the landscapes of the early Renaissance.[74] Although it is assumed that at least one of the brothers visited and perhaps even trained or worked in Italy for a short time, most likely in Milan or Siena, there is no precedent in Italy or in northern Europe for the extent of sophistication in the landscapes of the *Très Riches Heures*.[75] The twelve calendar miniatures in this manuscript contain representations of landscapes marked by seasonal change that were unrivaled for their vibrant colours and naturalistic details. They were also the first full-page illustrations representing the cycle of the months in any medieval manuscript.[76]

In the *Très Riches Heures*, the Limbourg brothers developed advanced techniques to represent a changing terrain and sky, atmospheric clouds, and other climatic conditions. One of the methods they developed was a type of scumbling, or using a semi-dry brush to apply thinned opaque pigment over another colour to create an effect of smoke, haze, or mist. The Limbourgs' use of this type of colour blending has been compared to the technique called 'sfumato' ('smoke-like'), usually associated with Leonardo da Vinci, in which the transitions between colours are softened by blending the edges into one another. The effect in Leonardo's painting often looks like smoke or mist, but unlike the Limbourg brothers, he used the technique to direct the focus within

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[72] New York, Cloisters Collection, MS 54.1.1a, b (Belles Heures of Jean de France, Duc de Berry).
[73] Chantilly, Musée Condé, MS 65 (Très Riches Heures du Duc de Berry).
[74] Timothy B. Husband, *The Art of Illumination: The Limbourg Brothers and the Belles Heures of Jean de France, Duc de Berry* (Metropolitan Museum of Art, 2008), pp. 3–4, 34–35. M. Meiss, *French Painting in the Time of Jean de Berry: The Limbourgs and their Contemporaries*, p. 67.
[75] J. Longnon and R. Cazelles, 'Introduction' in *The Très Riches Heures of Jean, Duke of Berry*, pp. 22–23; O. Pächt, 'Early Italian Nature Studies and the Early Calendar Landscape', pp. 40–45.
[76] M. Meiss, *French Painting in the Time of Jean de Berry: The Limbourgs and their Contemporaries*, p. 184.

the painting.[77] The Limbourgs used their early version of this colour blending technique along with highly descriptive details to provide a sense of realism in the first naturalistic snowy landscape in Western painting.[78] In the snow-covered scene for February, every element adds to the impression of a frigid winter day. The residents of the house and their cat are warming themselves by the fire, in which softly blended red and orange flames are interspersed with semi-transparent puffs of grey smoke. The smoke that rises from the chimney dissipates with translucency into the cool-toned grey-blue sky streaked with wintry stratus clouds. Meiss writes that the depiction of the visible breath of the man in the courtyard condensing into the frigid air is a detail not seen in an earlier painting.[79]

In *March*, colour is again used as a descriptive narrative device to distinguish the visible changes in the landscape and atmosphere. The snow has melted and in its place is the earth, just in the midst of turning from an ashy brown to a dull green. Peasants are hard at work tending the fields in preparation of the growing season. The bare branches on the trees outside the castle and in the middle of the garden reveal that it is not yet springtime. The sky is mostly clear and bright except for an area of semi-opaque grey clouds to the left, a visible sign of the lingering cold in the atmosphere.[80] *April* and *May* are both filled with the bright green of new spring growth as the nobles gather outside to enjoy the pleasant weather. In *April*, a wedding ceremony takes place under a perfectly clear and bright sky of lapis-blue. A hunting party gathers in *May*, with all the nobles decked out in their finest ensembles. Three of the ladies are dressed in bright green robes with matching harnesses on their horses, and nearly every member of the party wears a wreath of green leaves to observe the traditional celebration of the first day of May. The sky is a deep, bright blue with delicate wisps of silvery clouds high overhead that blend seamlessly into the blue expanse, while a faint, luminous haze

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[77] M. Hall, *Color and Meaning: Practice and Meaning in Renaissance Painting*, pp. 94–95, 239.

[78] The earliest European painting of a snowy landscape is a scene for the month of January in the 'Cycle of the Months' fresco in the Castello Buonconsiglio in Trento, painted around 1407 by an unknown artist. Enrico Castelnuovo, *I Mesi di Trento: Gli affreschi di torre Aquila e il gotico internazionale*, (Editrice Temi, 1986), pp. 34–35, 57. M. Meiss, *French Painting in the Time of Jean de Berry: The Limbourgs and their Contemporaries*, p. 186.

[79] T. Husband, *The Art of Illumination: The Limbourg Brothers*, pp. 313, 319, 321. M. Meiss, *French Painting in the Time of Jean de Berry: The Limbourgs and their Contemporaries*, pp. 187–88.

[80] Chantilly, Musée Condé, MS 65.

clings closer to the horizon, barely visible beyond lush forest trees and the castle.[81] In these calendar scenes and in all the others in the set, the landscape itself is the primary means of depicting the seasonal changes throughout the months, and it is mainly through the naturalistic details and colouring that this is accomplished.[82]

As mentioned earlier, colour was considered to be an aspect of light and the medieval love of colour in its pure state influenced the development of artistic style and the methods of making art. In medieval optics, an object's dominant hue was thought to be its true colour as transmitted by rays of light from the object itself, and any interference of colours bouncing around from other objects was an obstacle to the accurate perception of the true colour. Painters were advised to assign a particular colour to the interior of an outlined area and to represent light and shade by raising or lowering the value of the colour.[83] The late medieval treatise on painting, *Libro dell' Arte*, written by the Florentine artist Cennino Cennini about 1390, describes this process in detail in his section about painting a drapery in fresco.[84] The system described by Cennini called for using the pure colour of a hue in the shadows and then progressively adding white to the colour to make highlights in the areas that would be illuminated by the light. In traditional egg tempera, pure colour was more vibrant than its lightened form, so because of its intensity, these 'darker' areas would appear to project forward instead of receding as a shadow normally would. The pure colour was favored because it was brilliant enough to compete with the metallic gold in the ornamentation and background, but the limited value range resulted in a shallow sense of depth.[85] Painters working in the International style were pioneers in establishing a new range of variations in colours. They were able to create a new system of colouring that maintained the brilliance of hues while adding complexity and variation. This innovation was a crucial step for merging the decorative aspects of colour with the realistic depiction of the natural environment.

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[81] Chantilly, Musée Condé, MS 65. T. Husband, *The Art of Illumination: The Limbourg Brothers*, p. 319. M. Meiss, *French Painting in the Time of Jean de Berry: The Limbourgs and their Contemporaries*, p. 191.

[82] Before the fourteenth century, calendar month illustrations always relied on human activity rather than the observation of nature to represent seasonal changes. For more on the history of calendar images, see Bridget Ann Henisch, *The Medieval Calendar Year* (Penn State University Press, 1999). O. Pächt, 'Early Italian Nature Studies and the Early Calendar Landscape', pp. 37–47.

[83] James S. Ackerman, 'On Early Renaissance Color Theory and Practice', in *Memoirs of the American Academy in Rome*, 35 (1980), pp. 11–44 (pp. 11–16).

[84] Cennino Cennini, *The Craftsman's Handbook*, trans. by D. V. Thompson. (New York: Dover Publications, 1960), pp. 49–50.

[85] J. Ackerman, 'On Early Renaissance Color Theory and Practice', pp. 16–19; M. Hall, *Color and Meaning*, pp. 14, 20-21, 27-28.

Effects such as translucent layering, glazing, and sfumato were made possible through the use of new pigment binders that could create more transparent and blendable textures than the traditional tempera binding medium. By the early fifteenth century, northern manuscript painters like the Boucicaut Master and the Limbourg brothers were beginning to amend or replace the traditional tempera binding medium made from beaten egg-whites ('glair') with ingredients like fig juice, egg yolk, or gum arabic. Manuscript painters used various binding ingredients to alter the transparency and translucency of pigments to create glazes and used techniques like sfumato and scumbling to layer colours. In traditional tempera painting, mixing pigments to alter their hue or to produce secondary colours was usually avoided due to the fact that pigments would generally become dull, especially when lightening a rich colour like blue or red with white. The concept of mixing two colours to produce another colour, such as mixing blue and yellow to make green, was not unknown in the medieval era. However, it was not considered an ideal method for using precious materials. Painters were reluctant to compromise the purity of their costly pigments, and the prospect of losing intensity in the brilliance of their colours made it scarcely worth doing.[86]

The new binding ingredients increased vibrancy and luster, allowing painters to develop techniques for mixing colours as well as layering transparent colours over opaque pigments. By doing this, they expanded their palette to include an array of glowing pastels and iridescent jewel-tones. In the Limbourgs' *Belles Heures*, a foundational layer of red lead oxide, an opaque, orange-red pigment, was selectively overglazed with a cool and transparent organic red lake pigment. Techniques like these could create a richer red than even pure vermillion could achieve. The manuscript also contains mixtures of transparent organic red mixed with white that produced a pure rose-pink, and the same type of red combined with blue and white to make a pastel lavender-violet. In other places, the transparent red is layered over opaque white to create a radiant transparent rose. The blending of blue and white to portray variations in the sky such as clouds and changing atmospheric conditions allowed artists to create a quality of naturalistic luminosity never before achieved in painting. Significantly for landscape painting, it was discovered in the late fourteenth century that lead-tin yellow (a new pigment) could be combined with indigo to make a brilliant green, a technique the brothers used in the *Belles Heures*, where the colour green is prominent throughout.[87]

In the first half of the fifteenth century, Dutch and Flemish painters mastered the practice of binding pigments in an oil based medium (usually linseed or walnut oil).

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[86] Marcia B. Hall, *Color and Meaning*, pp. 15–16. Daniel V. Thompson, *The Materials and Techniques of Medieval Painting* (Dover Publications, 2016), pp. 173–74.
[87] T. Husband, *The Art of Illumination: The Limbourg Brothers*, pp. 325–27, 334. E. Panofsky, *Early Netherlandish Painting*, pp. 57, 151–55.

The use of oil as a binding medium for panel painting was used throughout the Middle Ages by painters from the Netherlands, though the practice did not reach its full potential until more effective techniques were devised in the fifteenth century. In Italy as well as the North, the practice of adding oil to pigments had been used for centuries for purposes such as the preparation of varnishes, mordants for gilding, and the decoration of metal. The treatise on painting by Theophilus, *Il Libro dell'Arte*, written in the early twelfth century, gives instructions for grinding pigments with oil and resin for these purposes.[88] Cennini recommends oil for wall painting, which he describes as a 'German' practice.[89] Blending pigments with oil enhanced the vibrancy of colour and created an enamel-like luminosity that was particularly crucial in the use of new variations of light blue that enabled artists to portray clouds and shifting hues in the skies.[90] The smooth texture and slower drying rate of oil allowed the paint to be blended with a softness that was not possible with any of the previous binding materials. Even Giorgio Vasari, whose Roman-Tuscan bias led him to attempt at every opportunity to downplay the merits of Northern art—which he associated with both landscapes and oil painting—was mesmerized by the quality of softness (*morbidezza*) and harmony (*unione*) of colour that is only possible with oil.[91] His praise for oil as a superior medium for beautifying pigment is so lavish it could be misconstrued as another way of saying that oil paint is easy to use in general. This would be a contradiction to other things he had to say about oil painting, especially when it came to landscapes, which he evidently considered one of the most difficult skills to master.[92]

Building on the blending techniques developed by manuscript painters, the development of oil painting opened up even more possibilities in realistic visual effects that relied heavily on light and colour. The Boucicaut Master's discovery of aerial perspective is echoed in the landscapes of Early Netherlandish panel painters such as Robert Campin, Rogier van der Weyden, and Jan van Eyck. One of the earliest panel paintings that uses the oil technique is Campin's Dijon *Nativity* from around 1420 to 1425, where light and colour create a very naturalistic illusion of space expanding into

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[88] Theophilus, *On Divers Arts*, trans. and ed. by John G. Hawthorne and Cyril Stanley Smith (Dover Publications, 1979), pp. 32–34.
[89] C. Cennini, *The Craftsman's Handbook*, pp. 57–60, 96; Paula Nuttall, *From Flanders to Florence*, pp. 161–163. E. Panofsky, *Early Netherlandish Painting*, pp. 151–52.
[90] Paul Hills, *Venetian Colour: Marble, Mosaic, Painting and Glass 1250-1550* (Yale University Press, 1999), pp. 134–36.
[91] Karen Hope Goodchild, '"A Hand More Practiced and Sure": The History of Landscape Painting in Giorgio Vasari's "Lives of the Artists"' *Artibus et Historiae*, 32.64, Special issue on the quincentennial of Giorgio Vasari's birth (1511-2011) (2011), pp. 25–40. (p. 27).
[92] K. Goodchild, "'A Hand More Practiced and Sure", pp. 35–36.

the far distance even while the metallic gold sun creates a more decorative effect with its rays, recalling the burnished suns in the *Boucicaut Hours*.[93] The use of atmospheric light and colour to describe distant views was more useful for depicting space in outdoor landscapes than linear perspective was, and this method became a regular feature of early fifteenth-century Northern painting.[94]

Early Renaissance Italy: oil painting and the use of light and colour

By the second half of the fifteenth century, some Italian painters were developing their own methods for working in oil. Leonardo da Vinci's scientific approach to the observation and rendering of colour was preceded by the experimental practices of Northern painters from previous generations. He was one of the first Italians to fully develop the colour blending techniques that were anticipated in the *Très Riches Heures*. His use of chiaroscuro and sfumato set his landscape paintings apart from any that came before him.[95]

The Venetian painter Giovanni Bellini is considered by many to be the first Italian to master the art of landscape painting. He developed a particular approach to painting landscapes that shows a strong influence of Flemish style in the attention to naturalistic details in the foreground (*paesi*) and atmospheric distant views (*lontani*). His use of light as a narrative and poetic device, along with his masterful use of colour to portray the times of day were foreshadowed in the work of French and Franco-Flemish manuscript painters.[96] He also had an interest in representing the optical effects of materials like crystal, glass, water, and air. The effects he achieved in his use of oil painting allowed

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[93] Robert Campin, *Nativity*, oil on panel, *c.* 1420–1425, Musée des Beaux-Arts de Dijon. P. Nuttall, *From Flanders to Florence*, pp. 18–23; E. Panofsky, *Early Netherlandish Painting*, p.159.

[94] A. Richard Turner, *The Vision of Landscape in Renaissance Italy* (Princeton University Press, 1966), pp. 6–7.

[95] J. Ackerman, 'On Early Renaissance Color Theory and Practice', pp. 25–38. For an examination on the oil painting methods used by Italian painters in the early Renaissance see, P. Nuttall, *From Flanders to Florence*, pp. 162–191.

[96] Davide Gasparotto, 'Giovanni Bellini and Landscape', in *Giovanni Bellini: Landscapes of Faith in Renaissance Venice*, ed. by Davide Gasparotto (Getty Museum, 2017), pp. 11–23 (pp. 11–17). Otto Pächt, *Venetian Painting in the 15th Century: Jacopo,Gentile and Giovanni Bellini*, ed. by Margareta Vyoral-Tschapka and Michael Pächt , trans. by Fiona Elliot (Harvey Miller Publishers, 2003), pp. 149–51, 156, 225–26. Susannah Rutherglen, 'Resplendent Brushes': Giovanni Bellini's 'Resurrection' Altarpiece for San Michele di Murano, Venice', *Artibus et Historiae*, 32.76 (2017), pp. 9–32.

him to create incredibly illusionistic and poetic landscapes where land and sky were seen to blend seamlessly into the depths of the horizon..[97]

Bellini and later Venetian painters of the Renaissance were especially innovative in their approach to using light and colour to represent natural phenomena and the environment in painting. The medieval love of light and colour was cultivated in Venice more than anywhere else, and it became a defining characteristic of Venetian painting during the Renaissance.[98] The city's position as the gateway of the East, with the largest marketplace for coloured pigments, made it uniquely situated to be the leader in this regard.[99] The blending of Northern Gothic and Italian artistic traditions was particularly strong in Venice, as Venetians had a long tradition of being artistically oriented towards the North, while maintaining deep ties to the Italian mainland. They were early adopters of the innovative painting techniques of Flemish and Dutch painters.[100] The exploration of different blending and layering techniques, and the mastery of oil paint and other binding materials opened up new possibilities for painters everywhere to produce naturalistic scenery and landscapes.

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[97] Paul Hills, *Venetian Colour: Marble, Mosaic, Painting and Glass,* pp. 130–31. Eric R. Hupe, 'In the Midst of a Cloud: Giovanni Bellini and the Optics of the Resurrection', *Predella: Journal of Visual Arts*, 2020, pp. 3–16. Eric R. Hupe, 'Giovanni Bellini's angelus cristallum: Light, Incarnation, and the London Agony in the Garden', *Artibus et Historiae*, 42.84 (2021), pp. 51–66.

[98] For more on the character of Venetian colour and light in painting, and how it may have been influenced by the city's unique environment and artistic heritage, see: Paul Hills, *Venetian Colour: Marble, Mosaic, Painting and Glass*, pp. 9–19, 119–25.

[99] Julia A. Delancey, ''In the Streets Where They Sell Colors': Placing "vendecolori" in the urban fabric of early modern Venice', *Wallraf-Richartz-Jahrbuch*, 72 (2011), pp. 193–232. Louisa C. Matthew, ''Vendecolori a Venezia': The Reconstruction of a Profession', *The Burlington Magazine*, 144.1196 (2002), pp. 680–686.

[100] Davide Gasparotto, 'Giovanni Bellini and Landscape', pp. 15–17. O. Pächt, *Venetian Painting in the 15th Century*, 225–26.

3. Visions of Paradise and the Flowering Meadow

Introduction

Between the Late Gothic and early Renaissance periods, the shimmering gold backgrounds that represented the heavenly or spiritual realm were replaced by lush, green forests, flower-strewn meadows, and atmospheric landscapes. The transformation from the celestial gold backgrounds to blue skies and verdant, flowering meadows was a result of cultural influences, as well as the development and spread of methods for mixing and using pigments in more effective ways.[101] This alteration was aided by a new focus on ideas about the earthly and celestial gardens of Paradise, along with a new interest in the classical pastoral landscape. The increased appearance of paradisical gardens in visual art occurred during a time of growing enthusiasm for pleasure gardens and a desire to enjoy the experience of being close to nature. The new interest in the idyllic landscape of the pastoral tradition was in large part due to the revival of classical poetry. This tradition merged with the medieval concept of the enclosed garden of paradise, which was itself a composite of a number of diverse associations, both spiritual and secular.[102] This discussion will explain how one of the dominant motifs used during the late medieval to early Renaissance development of landscape painting—the flowering meadow—was a result of the synchronization of classical and medieval ideas about an idyllic or paradisiacal natural environment.

Idyllic landscapes in the classical pastoral tradition

The foundation of European landscape painting lies in the decorative nature scenes and backgrounds found in Hellenistic and Roman wall paintings. These landscapes emerged from within the classical Mediterranean tradition of pastoral poetry that evokes imagery of bucolic landscapes. The idyllic, pastoral landscape, or *locus amoenus* ('pleasant place'), that functions as a place of refuge and happiness is a concept that originated in ancient Hellenistic poetry like Hesiod's *Works and Days*, which speaks of the lost Golden Age, and in the vividly descriptive narrative works of classical poets like Homer, Theocritus, Virgil, and Ovid. The *locus amoenus* typically includes features such as singing birds, fruit trees, soft flowering meadows, luxuriant

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[101] Rebekah Compton, 'The Green Places of Fra Filippo Lippi and Sandro Botticelli' in *Green Worlds in Early Modern Italy: Art and the Verdant Earth*, ed. by Karen Hope Goodchild, April Oettinger and Leopoldine Prosperetti (Amsterdam University Press, 2019), 31–48.

[102] Ann Winston-Allen, 'Gardens of Earthly and Heavenly Delight: Medieval Gardens of the Imagination', *Neuphilologische Mitteilungen*, 99.1 (1998), pp. 83.

shade trees, crystal clear streams, and gentle breezes.[103] The addition of the elaborate and sensuous descriptions of the landscape scenes in Homer's *Odyssey* adds a heightened sense of realism and a dramatic quality that enhances the narrative of the work. In this way, these poetic works not only introduced the concept of the idyllic landscape to poetry, but also broadened the function of landscape by allowing it to become a stage for the narrative story to take place.[104]

The pastoral landscape tradition that developed in poetry inspired the illusionistic scenes produced in Roman wall paintings. The characteristics of classical scenic landscapes included wide, sweeping vistas of land and sea, rocky hills, trees, and fragments of architectural monuments. These motifs were set within a pictorial atmosphere of impressionistic details that used basic perspective as well as light and shade to represent spatial recession. The Romans delighted in natural vistas and they painted the interiors of their houses with scenery that gave the illusion that the walls were opening into lush gardens complete with birds, blooming roses, and fruit trees. Roman scenic landscape paintings, such as the *Odyssey* frescoes in the Vatican Museum,[105] and many of the ones found in the ancient villas of Pompeii, approach a level of realism. However, they lack compositional coherence, and thus they never become much more than wall ornamentation arranged within a semi-illusionistic but shallow setting. Due to the lack of a cohesive use of perspective and lighting, these landscapes never achieved a truly illusionistic effect.[106]

In the post-Roman world of the Early Middle Ages, the Greco-Byzantine influence dominated the visual arts, and landscape painting was reduced to a formulaic approach that relied on the use of symbolic motifs of natural elements. The blue skies and open vistas that were seen in Roman art disappeared and were replaced by gleaming gold backgrounds that are thought to have represented the celestial or spiritual world. The two-dimensionality of the picture surface was embraced and the entire space became a unified backdrop for the figural subjects.[107] In the Italian Trecento period, Tuscan painters like Giotto and Ambrogio Lorenzetti reintroduced elements like

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[103] Jean Delumeau, *History of Paradise: The Garden of Eden in Myth and Tradition* (University of Illinois Press, 2000), pp. 6–9. D. Pearsall and E. Salter, *Landscapes and Seasons of the Medieval World*, pp. 3–5, 9–11. Allan R. Ruff, *Arcadian Visions: Pastoral Influences on Poetry, Painting and the Design of Landscape* (Windgather Press, 2015), pp. 3–8, 13–14, 15–17.

[104] D. Pearsall and E. Salter, *Landscapes and Seasons of the Medieval World*, pp. 3–9.

[105] *Odyssey Landscapes*, first century, wall paintings, Biblioteca Apostolica Vaticana.

[106] E. Panofsky, *Early Netherlandish Painting*, pp. 9–10. D. Pearsall and E. Salter, *Landscapes and Seasons of the Medieval World*, pp. 3–4, 12–15.

[107] D. Pearsall and E. Salter, *Landscapes and Seasons of the Medieval World*, pp. 16–20.

blue skies and panoramic vistas.[108] The most ambitious example of landscape painting created in the fourteenth century was Lorenzetti's *Effects of Good Government in the Countryside*. This section of the fresco cycle, *Allegory of Good and Bad Government*, in Siena's Palazzo Pubblico depicts a panoramic view of the Sienese hills and countryside. It is an idealized interpretation of a pastoral setting where every element is envisioned to be in perfect harmony. This was the first major medieval painting to draw so directly from the pastoral tradition.[109] European landscape painting as it developed in the late medieval period was in part a return to classical models of landscapes that originate in the Greco-Roman tradition. When landscapes began to evolve beyond the twisted hills and rocky outcrops of the Trecento, they did so within the shadow of the revival of the classical pastoral tradition, as well as in the context of Christian religious themes. Petrarch, who had an immense admiration for Virgil, was highly influential in rekindling an appreciation of nature and landscape in the fourteenth century. However, the wildness and magnificence of nature untamed was still unnerving to Petrarch, as well as others of his time, and so it was the cultivated and 'enclosed garden' that they turned to for a true sense of peace and refuge.[110]

Gardens of paradise

One of the most enduring landscape motifs in late medieval art was the verdant, flowering meadow that appears throughout many forms of visual art, as well as in literature and poetry. It was used in both the religious and secular arts, and though from a modern perspective it appears to be a purely decorative element, it was also a symbolic device that would have had a complex meaning to people in the Middle Ages. The motif is a reference to the concept of an idyllic landscape, a garden of paradise. There are two main origins of this idea as it applies to both poetic and visual depictions. The first is the classical pastoral and mythological landscapes already discussed.[111] The other source for a landscape of paradise in the Western imagination is the walled

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[108] Kenneth Clark, *Landscape into Art* (Harper & Row, 1979), p. 9; D. Pearsall and El. Salter, *Landscapes and Seasons of the Medieval World*, p. 31; A. Turner, *The Vision of Landscape in Renaissance Italy* (Princeton University Press, 1966), pp. 11–12.
[109] Ambrogio Lorenzetti, *Effects of Good Government in the City and the Country*, 1338–1339, fresco, Sala della Pace, Palazzo Pubblico, Siena. Giulietta Chelazzi Dini, *Sienese Painting: from Duccio to the Birth of the Baroque* (Harry N. Abrams, 1998), pp. 52, 168–172. Diana Norman, *Painting in Late Medieval and Renaissance Siena* (Yale University Press, 2003), pp. 98–104.
[110] A. Ruff, *Arcadian Visions*, pp. 23–26.
[111] K. Clark. *Landscape into Art*, pp. 6–9. J. Delumeau, *History of Paradise: The Garden of Eden in Myth and Tradition*, p. 134. D. Pearsall and E. Salter, *Landscapes and Seasons of the Medieval World*, pp. 27, 51–54, 56–75.

garden that existed in the medieval Christian view as both the earthly Garden of Eden and as a metaphysical or spiritual paradisiacal garden. This tradition stems from the ancient Middle East where the enclosed garden held a special significance in both a practical and a spiritual sense.[112] The word 'paradise' comes from the Old Persian, *pairi-daeza*, meaning literally a walled orchard or garden. The garden always had running water, fruit, flowers, and shade trees; it was an oasis in the dry, arid lands of the Middle East. The ancient Hebrew language adopted the word in the form of *pardes*, and the Septuagint used the word *paradeisos* to refer to the Garden of Eden.[113] Thus, the Persian idea of the walled garden as a lush and peaceful haven was assimilated into Jewish, Christian, and Muslim belief systems, and became the basis for the Garden of Eden. Initially, and until the sixth or even eighth century, the word 'paradise' in Christian religion always referred to the terrestrial Garden of Eden, which was believed by most people to be an actual physical place on earth. In time, 'Paradise' came to also represent the heavenly garden, a place of eternal bliss in the afterlife, as well any place where man existed in perfect harmony with the natural world.[114] The idea of the classical idyllic landscape and the Persian walled garden as places of peace and refuge were woven into the Christian worldview within its first few centuries of existence. The image of Christ the shepherd tending to his flock in peaceful, green pastures was an allusion to the pastoral dream that Virgil and others wrote about.[115]

Jean Delumeau writes that the significance of the enclosed garden was partially a result of the important role played by monasteries and their cloister gardens which operated on the levels of both sacred and profane, where the enclosure was a necessary component of the operation.[116] The monastery itself was an enclosed space that encompassed the religious community residing there. According to the Rule of St. Benedict, every monastery should be equipped with everything its inhabitants needed and everything contained within an enclosure so that the monks would not be tempted to roam.[117] There were many different types of gardens in monasteries: gardens with vegetables and culinary herbs located near the kitchen, medicinal herbs grown near the

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[112] Ann Winston-Allen, 'Gardens of Earthly and Heavenly Delight: Medieval Gardens of the Imagination', *Neuphilologische Mitteilungen*, 99.1 (1998), pp. 83–92.
[113] J. Delumeau, *History of Paradise: The Garden of Eden in Myth and Tradition*, p. 3.
[114] J. Delumeau, *History of Paradise: The Garden of Eden in Myth and Tradition*, pp. 3–5, 16–21.
[115] D. Pearsall and E. Salter, *Landscapes and Seasons of the Medieval World*, pp. 161, 182–5; A. Ruff, *Arcadian Visions*, pp. 23–26.
[116] J. Delumeau, *History of Paradise: The Garden of Eden in Myth and Tradition*, p. 122.
[117] Paul Meyvaert, 'The Medieval Monastic Garden', in *Medieval Gardens*, ed. by Elisabeth B. MacDougall (Dumbarton Oaks, 1986), pp. 23–53 (pp. 27–28).

infirmary, and orchards combined with cemeteries.[118] Each of these were all traditionally enclosed with some sort of fence as a matter of practicality, but the cloister garden was placed in the center and enclosed on all sides by arcades and monastery walls. Inside the cloister garden was an expansive green lawn, divided vertically and horizontally down the middle, with an evergreen tree and a fountain in the center. In this way the monastic cloister garden was a microcosmic representation of the Garden of Eden, where the four rivers of Paradise spring out from the center, marking the axis of the world.[119]

The new interest in paradisical gardens may have also been bolstered by the growing enthusiasm for secular pleasure gardens and a desire to enjoy the experience of being close to nature. Contact with the Middle East through trade and war brought new knowledge and botanical specimens for growers to enjoy. The presence of Islamic gardens in Spain and parts of the Italian peninsula—as well as the discovery of Persian poetry, inspired Europeans to construct their own gardens in literature, poetry, visual art, and in reality.[120] Another factor that may have spurred the enthusiasm for gardens was the increased concern about clean air for health and the desire to look to the eternal paradise beyond the bounds of earthly suffering—especially in the aftermath of the Black Death.[121] There were other types of earthly paradise gardens that were represented in the Middle Ages. The classic medieval 'garden of love' was an extremely popular theme in romance literature and poetry and was often portrayed in illustrations and tapestries.[122]

In contrast to the earthly paradise is the celestial or heavenly paradise. There are examples of this type of place in Greek mythology, such as the Isles of the Blessed or the Elysian Fields. In Christian beliefs there were several interpretations and versions of a heavenly paradise garden. Throughout the Middle Ages, the garden imagery that captured the fascination of theologians and the imagination of artists the most was the

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[118] P. Meyvaert, 'The Medieval Monastic Garden' in *Medieval Gardens*, ed. by Elisabeth B. MacDougall, pp. 38–41.

[119] Terry Comito, *The Idea of the Garden in the Renaissance* (Rutgers University Press, 1978) pp. 33–34. P. Meyvaert, 'The Medieval Monastic Garden' in *Medieval Gardens*, ed. by Elisabeth B. MacDougall, pp. 28, 44–45. J. Delumeau, *History of Paradise: The Garden of Eden in Myth and Tradition*, pp. 121–124.

[120]J. Goody, *The Culture of Flowers*, , pp. 125–26.

[121] Carole Rawcliffe, ''Delectable Sightes and Fragrant Smelles': Gardens and Health in Late Medieval and Early Modern England', *Garden History*, 36.1 (2008), pp. 3–21 (pp. 4–17).

[122] J. Delumeau, *History of Paradise: The Garden of Eden in Myth and Tradition*, pp. 128–130. D. Pearsall and E. Salter, *Landscapes and Seasons of the Medieval World*, pp. 53, 81–117; Derek Pearsall, 'Gardens as Symbol and Setting in Late Medieval Poetry', in *Medieval Gardens*, ed. by Elisabeth B. MacDougall, pp. 235–52.

hortus conclusus ('enclosed garden') from the *Song of Songs* from the Old Testament.[123] The *Song of Songs* is a love poem written as a dialogue between a bride and groom. The groom praises his bride's purity by comparing her to an enclosed garden and a sealed fountain. 'A garden enclosed is my sister, my spouse, a spring shut up, a fountain sealed'.[124] This poem was extremely popular in the Late Middle Ages. According to E. Ann Matter, there are 'nearly one hundred extant commentaries and homilies on the Song of Songs written between the sixth and the fifteenth centuries'.[125] The earliest commentaries interpreted the poem as an allegory of Christ's love and identified the lovers in the poem as Christ and his church or as Christ and the individual soul. By the twelfth century, the bride was more popularly identified as the Virgin Mary, who is also traditionally identified with the Catholic church.[126] Garden motifs in Marian imagery were especially connected with the themes of the Annunciation, the Nativity, and an image type known as the Madonna of Humility.

The flowering meadow

Throughout the Middle Ages, the idea of Paradise as a place or state of existence where nature is in perfect harmony with man was explored and expressed in many different ways. In visual art, this vision of paradise was synonymous with a green, flower-covered meadow. In the late medieval period, the flowering meadow was woven into northern European tapestries as the millefleur ('a thousand flowers') background. Colourful tapestries were woven in France as early as the beginning of the fourteenth century, though the millefleur pattern arose around 1400 in the southern Netherlands and grew in popularity throughout the century. They were used extensively in the winter as wall hangings, bed covers, curtains, and other furnishings to help insulate interiors from the cold. The millefleur patterns with flowers and lush greenery were a welcome reminder of springtime. The flowers were depicted in naturalistic and individualized forms as in botanical illustrations, and scattered across the surface in a purely decorative pattern. Art historians and biologists have identified hundreds of variations of flowers and plants featured in these tapestry designs.[127]

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[123] Anne Winston-Allen, *Stories of the Rose: The Making of the Rosary in the Middle Ages* (Pennsylvania State University Press, 1997), p. 89.
[124] *The Holy Bible Containing the Old and New Testaments,* Authorised King James Version, (Cambridge University Press, 1984), Song of Songs 2. 1–2., 4. 12.
[125] E. Ann Matter, *The Voice of my Beloved: The Song of Songs in Western Medieval Christianity* (University of Pennsylvania Press, 1992), p. 3.
[126] Anne Winston-Allen, *Stories of the Rose: The Making of the Rosary in the Middle Ages* (Pennsylvania State University Press, 1997), p. 92.
[127] Lawrence J. Crockett, 'The Identification of a Plant in the Unicorn Tapestries', *Metropolitan Museum Journal*, 17 (1982), pp. 15–22. Margaret B. Freeman, *The Unicorn*

In its more archaic visual form, the flowering meadow motif is found in Byzantine art as a horizontal strip of green in the foreground of manuscript miniatures, a representation of the grass-covered earth. At times it appears in an undulating or waving pattern, and in its more complete form it includes plants and flowers scattered throughout. The motif was formalized in painting by Venetian artists in the late fourteenth century, and from there it combined with other influences to create one of the most enduring landscape settings in late medieval painting.[128] One of the earliest manuscripts with this motif is the *Cotton Genesis*, which dates from the fifth century, and probably originated in Alexandria. The *Cotton Genesis* included a pictorial cycle depicting the first days of Creation. One of the miniatures pictured the Third Day of Creation, with God the Creator and three angels that represent the first three days. The figures are standing in a landscape with fruit trees, shade trees, and flowers bursting forth from the green grass in the foreground.[129] The corresponding verse in the Septuagint does not mention flowers. It only states that 'the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind.'[130] The miniature illustrates these, as well as flowers and shade trees, all presented in precise categories of botanical species. Markos Giannoulis notes the source of these depictions, which includes apples, black poplar, cumin, and chrysanthemums, can be traced to the illustrations found in classical botanical treatises.[131]

The green ground with flowers was represented also in Italo-Byzantine mosaics, such as those in the basilicas of Sant'Appolinare Nuovo and San Vitale in Ravenna and in the Basilica di San Marco in Venice. It has been shown that the miniature for the Third Day of Creation in the *Cotton Genesis* was almost certainly the prototype for one of the scenes of Creation in the mosaic in the atrium of the Basilica di San Marco in Venice. The mosaic cycle that decorates the Creation cupola of San Marco was made in the second decade of the thirteenth century and closely resembles the *Cotton Genesis* illustration. It omits the flowers in the foreground, apparently due to space restrictions,

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Tapestries, 2nd edn (Metropolitan Museum of Art, 1983), pp. 111–53. Adolfo Salvatore Cavallo, *Medieval Tapestries in the Metropolitan Museum of Art*, (Metropolitan Museum of Art, 1993), pp. 27, 71–73, 503–04.

[128] Sandro Sponza, 'Painting in Fourteenth Century Venice', in *Venice Art and Architecture* ed. by Sharon Herson, trans. by Janet Angelini and others (Konemann, 1997), pp. 176–201 (pp. 189–190, 199).

[129] London, British Library, MS Cotton Otho. B. VI. (Cotton Genesis), fol. 3r.)

[130] *The Holy Bible Containing the Old and New Testaments,* Authorised King James Version, Genesis 2. 11. Markos Giannoulis, 'The Book of Genesis', in *A Companion to Byzantine Manuscripts*, ed. by Vasiliki Tsamakda (Brill, 2017), pp. 199–206 (pp. 199–202, fig. 66).

[131] Markos Giannoulis, 'The Book of Genesis' in *A Companion to Byzantine Manuscripts*, ed. by Vasiliki Tsamakda, pp. 201–203.

though the flowering green earth is fully present in other scenes of the same mosaic cycle.[132]

Lorenzo Veneziano (documented from 1353 to 1379), was the first painter to fully integrate the Late Gothic manner within the Veneto-Byzantine tradition. As the most important Venetian painter in the second half of the fourteenth century, he was responsible for transferring the flowering green landscape motif from Italo-Byzantine mosaics to Venetian devotional paintings. The initial modification made towards this development in Lorenzo's art was his inclusion of a horizontal strip of green ground along the bottom edge of many of his paintings, a design that he would have been familiar with from the traditional mosaic arrangement depicting saints and figures standing on a grassy field. He would have seen arrangements such as this in the mosaics of San Marco and he would have likely been exposed to other examples in Venice. His earliest dated work, *Annunciation Polyptych*, or *Lion Polyptych*, painted between 1357 to 1359 for Domenico Lion, subtly introduces the grassy motif with a continuous strip of green landscape that runs along the bottom portion of the altarpiece and acts as a base upon which the figures stand. The central panel depicts the 'Annunciation' combined with the 'Virgin Enthroned'.[133]

When he repeated this theme in another polyptych in 1371, *Annunciation with Saints Gregory, John the Baptist, James, and Stephen*, the green field had blossomed into a lush, verdant carpet with naturalistic blades of grass and flowers overlapping the base of the Virgin's throne and the robes of the other figures. This is the first time the flowering meadow appeared in a monumental painting in Venice.[134] Around the same time that he painted his *Lion Polyptych*, he also included the green field motif in another painting that would lead to a major change in one of the most popular subjects of

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[132] Robert S. Nelson, 'The Italian Appreciation and Appropriation of Illuminated Byzantine Manuscripts' in *Dumbarton Oaks Papers*, 49 (1995), pp. 209–235. (pp. 213–214). Kurt Weitzmann and Herbert L. Kessler, *The Cotton Genesis: British Library Codex Cotton Otho B.VI*, pp. 3–6, 16–20.

[133] Lorenzo Veneziano, *Annunciation Polyptych,* 1357–1359, tempera and gold on panel, Gallerie dell'Accademia, Venice. S. Sponza, 'Painting in Fourteenth Century Venice' in *Venice Art and Architecture* ed. by S. Herson, trans. by J. Angelini and others, pp. 179, 188–190.

[134] Lorenzo Veneziano, *Annunciation with Saints Gregory, John the Baptist, James, and Stephen*, 1371, tempera and gold on panel, Gallerie dell'Accademia, Venice. S. Sponza, 'Painting in Fourteenth Century Venice' in *Venice Art and Architecture* ed. by S. Herson, trans. by J. Angelini and others, pp. 189–190, 199. Cristina Guarnieri, 'Lorenzo Veneziano e l'ordine dei predicatori: nuove riflessioni critiche attorno alle tre tele con la Madonna dell'umiltà', in *Lorenzo Veneziano: Le Virgines humilitatis, Tre Madonne "de panno lineo", Indagini, tecnica, iconografia*, ed. by Chiara Rigoni and Chiara Scardellato (Silvana Editoriale, 2011), pp. 19–41 (pp. 19–21).

Marian devotional art, the 'Madonna of Humility'. The painting is the *Madonna of Humility with St. Dominic and St. Peter the Martyr*, made for the Dominican Church of Sant'Anastasia in Verona that dates to 1358 or 1359. This is the earliest version of the Madonna of Humility that portrays her seated on a field of green grass, a particular version of the subject that was described for the first time by Millard Meiss as the Venetian 'garden type' of the Madonna of Humility.[135] The Madonna of Humility image type, which was very widespread in the late Trecento and first half of the Quatrocento, developed rather quickly into a unique type in Venice—the Virgin and Child seated on a flower-strewn meadow.[136]

The Madonna of Humility is a devotional subject that depicts the Virgin seated low on the ground, sometimes on a cushion, holding the infant Christ. The oldest example of this type of image is a fresco by Simone Martini in the tympanum of the portal of the Notre Dame cathedral in Avignon, France, painted between 1340 and 1343. The subject quickly spread among Sienese painters and as early as the 1350s it was already being reproduced all over Italy. By the third quarter of the century it was also found in Spain, France, and Germany, and its popularity persisted well into the second half of the fifteenth century. The name of the subject comes from the inscription *Nostra domina de humilitate*, which is included on several of the early paintings.[137] There are many variations to be found in this group of images, but the most important element is Mary sitting with the infant Christ in her arms, in a low position, either directly on the ground or on a cushion on the ground, undoubtedly an expression of the Virgin's humility.[138]

Lorenzo Veneziano's painting for the Church of Sant'Anastasia, in Verona already contained one aspect of the characteristic that would make the Venetian Madonna of Humility unique; the Virgin is seated outside on a green, grass-covered mound of earth, rather than the usual indoor environment. Lorenzo painted additional votive panels with this same treatment, such as the *Madonna of Humility with Saints Mark and John* (*c.* 1366–1370), in the National Gallery London.[139] Subsequent versions by other Venetian painters followed Lorenzo in including the grass motif. By the 1370s, the green

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[135] Lorenzo Veneziano, *Madonna of Humility with St. Dominic and St. Peter the Martyr*, 1358–1359, fresco transferred to canvas. Basilica di Sant'Anastasia, Verona. S. Sponza, 'Painting in Fourteenth Century Venice', in *Venice Art and Architecture*, ed. by S. Herson, trans. by J. Angelini and others, p. 188.

[136] Millard Meiss, *Painting in Florence and Siena after the Black Death* (Princeton University Press, 1951), pp. 136, 140.

[137] M. Meiss, *Painting in Florence and Siena after the Black Death*, pp. 132–3.

[138] M. Meiss, *Painting in Florence and Siena after the Black Death*, pp. 148–153.

[139] Lorenzo Veneziano, *Madonna of Humility with Saints Mark and John*, *c.* 1366–1370, tempera and gold on panel, National Gallery London.

ground in the Venetian Madonna of Humility paintings had blossomed into a flower-strewn meadow, and a great number of small devotional panels that contained this formula were painted by various Venetian artists. The Madonna of Humility image, which was very widespread from the late fourteenth century and throughout the fifteenth century, developed rather quickly into this unique type in Venice.[140]

The flowering ground setting for the Madonna spread to other cities in northern Italy and north of the Alps, merging with other iconographic types as well as other subjects. The artist most responsible for popularizing the flowering meadow outside of Venice was Gentile da Fabriano (*c.* 1375–1427), the most important painter working in the International Gothic style in early fifteenth-century Italy. His early artistic formation took place in Pavia and Milan in the 1390s, where he trained and worked in the style and techniques developed by Giovannino de' Grassi. After his initial training in Lombardy, he moved to Venice where he opened a studio. It was in Venice where his own style began to develop.[141] One detail that he embraced from Venetian painting was the flowery ground that was introduced by Lorenzo Veneziano in the fourteenth century. Gentile's *Valle Romita Polyptych* (*c.* 1408) calls to mind Lorenzo's *Annunciation with Saints Gregory, John the Baptist, James, and Stephen*. In both paintings, the saints stand on naturalistic grassy fields with flowers and blades of meadow grass overlapping the feet of the saints. The colourful assortment of flowers are individualized by species just as they are in millefleur tapestries from the time.[142]

Gentile da Fabriano and his workshop assistants painted several versions of the Madonna in the *hortus conclusus*, in which she is seated in a flowery garden setting.[143] The *Nativity* is a Venetian 'garden type' Madonna of Humility combined with the Nativity, a theme that was to become very popular in the middle to late fifteenth century in Florence.[144] The foreground is covered in a lush carpet of flower-covered

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[140] M. Meiss, *Painting in Florence and Siena after the Black Death*, pp. 136, 140, 144.
[141] Keith Christiansen and others, *Gentile da Fabriano and the Other Renaissance*, ed. by Laura Laureati and Lorenzo Mochi Onori (Mondadori Electa, 2006), pp. 62-63, 94-98, 124, 144.
[142] Gentile da Fabriano, *Valle Romita Polyptych*, *c.* 1408, tempera and gold on panel, Pinacoteca di Brera, Milan. Keith Christiansen and others, *Gentile da Fabriano and the Other Renaissance*, pp. 124–33.
[143] For example, see the following two paintings: Gentile da Fabriano, *Madonna and Child*, *c.* 1400–1405, tempera and gold on panel, Galleria Nazionale dell'Umbria, Perugia. *Madonna and Child with SS. Nicholas, Catherine of Alexandria, and a donor*, tempera and gold on panel, Gemäldegalerie, Berlin-Dahlem; *Madonna and Child*, *c.* 1410, tempera and gold on panel, Metropolitan Museum of Art, New York.
[144] Gentile da Fabriano workshop, *Nativity and Madonna of Humility*, tempera and gold on panel, J. Paul Getty Museum, Los Angeles. Keith Christiansen, *Gentile da Fabriano*, (Cornell University Press, 1982), pp. 122–23.

grass closely resembling the grassy fields in the *Valle Romita Polyptych*. This is a nocturnal scene and the artist has used chiaroscuro to add interest where the tops of the trees and the hills in the distant landscape are dramatically illuminated by a soft light that comes from above. The treatment of light on the landscape in the Getty Nativity painting foreshadows the lighting effects used in the landscape of Gentile's masterpiece, *Adoration of the Magi*, which he created for the Strozzi chapel in Florence in 1423. In this altarpiece he included a flowering meadow in the predella scene, *Flight into Egypt*. In the cornices of the frame that would usually contain portraits of standing saints, he included instead, thirty-six different flowers rendered in hyperrealistic detail.[145] This altarpiece, with its central panel and predella pictures, constituted a complete work of art that was the most influential and significant achievement in landscape painting since Ambrogio Lorenzetti's *Good Government in the Country*.[146]

Gentile is credited with introducing the flowering meadow to Fra Angelico, who in turn established its place in Florentine art. The motif was enthusiastically embraced in Florence and it became a prominent attribute of Florentine painting in the second half of the fifteenth century. The connections between the blossoming intellectual culture in fifteenth-century Florence and the proliferation of flowers and pastoral landscapes has been explored by many historians who have called attention to aspects such as botanical science, garden culture, classical poetry, Neoplatonism, Dante, and more.[147] In Florentine painting, botanical symbolism became an elegant and sophisticated visual language that found expression within a harmonious blend of naturalistic details and decorative elements. Lucia Tongiorgi Tomasi describes the flowering meadow in fifteenth-century Florentine art as, 'an arena in which botanical knowledge and symbolical allusions could merge in an extraordinary equilibrium between naturalism and symbolism'.[148]

As the appreciation of classical traditions led to a growing interest in botanical knowledge and idyllic landscapes, Florentine artists assimilated these ideas with the

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[145] K. Christiansen, *Gentile da Fabriano*, p. 62. K. Christiansen and others, *Gentile da Fabriano and the Other Renaissance*, pp. 30, 95, 148–9.
[146] K. Christiansen and others, *Gentile da Fabriano and the Other Renaissance*, pp. 22, 33–35. K. Christiansen, *Gentile da Fabriano*, pp. 29–33, 62–64.
[147] Creighton Gilbert, *How Fra Angelico & Signorelli Saw the End of the World* (Pennsylvania State University Press, 2003), pp. 24, 46–47, 56. Max C. Marmor, 'From Purgatory to the Primavera: Some Observations on Botticelli and Dante' *Artibus et Historiae*, 24.48 (2003), pp. 199–212 (203–08). Lucia Tongiorgi Tomasi, *The Flowering of Florence: Botanical Art for the Medici* (National Gallery of Art, 2002), pp. 16–19.
[148] L. Tomasi, *The Flowering of Florence,* p. 23.

medieval concept of paradisiacal gardens. Sandro Botticelli's *Primavera*[149] can be viewed as a culmination of these conceptual interests.[150] It also exemplifies ways in which motifs and methods of the Late Gothic style were integrated with Renaissance aspirations. The foreground of the *Primavera*, with its luxurious meadow strewn with naturalistic flowers, is a tribute to late medieval interests like botanical studies and flower symbolism.[151] In Mirella Levi D'Ancona's study of the assortment of flower motifs in the *Primavera*, she identified forty different species, which she lists along with literary and symbolic attributes.[152] The flowery ground evokes the millefleur patterns found in Northern tapestries, and the architectural framework of the trees mimics arboreal backdrops also found in tapestry design.[153] The use of illusionistic perspective is diminished in favor of the pursuit of overall decorative quality and a harmonious composition with a shallow depth of field. The flower-strewn meadow was applied with careful crafting of realistic botanical forms and an idealized and poetic conception of the natural world. The blending of the idyllic pastoral landscape and the medieval pleasure garden adds a complex and mystical quality to the lush, flower-covered foreground. All of this produced a vision of paradise that contributed greatly to the visual language of landscapes in fifteenth century painting.[154]

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[149] Sandro Botticelli, *Primavera*, *c*. 1480, tempera grassa on panel, Gallerie Degli Uffizi, Florence.

[150] The flowery meadow in Botticelli's Primavera has been linked with Dante's Earthly Paradise since the Renaissance. The central female figure is almost universally thought to be a simultaneous representation of both Venus and Mary.

[151] Paul Barolsky, 'Botticelli's "Primavera" and the Poetic Imagination of Italian Renaissance Art', *Arion: A Journal of Humanities and the Classics*, 8.2 (2000) pp. 5–35 (6–7, 33–35). M. Marmor, 'From Purgatory to the Primavera', pp. 199–212 (203–08).

[152] Mirella Levi D'Ancona, *Botticelli's Primavera: A Botanical Interpretation* (Olschki Editore, 2022), pp. 41–71.

[153] E. H. Gombrich, 'Botticelli's Mythologies: A Study in the Neoplatonic Symbolism in his Circle', Journal of the Warburg and Courtauld Institutes, 8 (1945), pp. 7–60 (19, 42–43). Sergiusz Michalski, 'Venus as Semiramis: A New Interpretation of the Central Figure of Botticelli's "Primavera"', *Artibus et Historiae* , 2003, 24.48 (2003), pp. 213-222 (217).

[154] Allison Cole, 'The Perception of Beauty in Landscape in the Quattrocento', in *Concepts of Beauty in Renaissance Art*, ed. by Frances Ames-Lewis and Mary Rogers (Ashgate, 1999), 28–37 (pp. 28–31, 34). Lucia Tongiorgi Tomasi, *The Flowering of Florence,* 19, 22–23.

Conclusion

The transformation from the allover gold backgrounds of Trecento paintings to the colourful gardens and lush landscapes that dominated late fifteenth century painting was a result of several factors. This dissertation has focused on three primary areas of study: the growth of naturalistic rendering through visual observation, the depiction of light and colour, and the importance of the blended concepts of the pastoral and the paradisiacal natural environment. Tracing the history of naturalistic rendering in Gothic art has shown that manuscript illuminators and miniaturists in both Italy and northern Europe laid the groundwork for the development of landscape painting during the late medieval to early Renaissance period. Italian artists specializing in botanical and animal nature studies for practical texts were the first to develop the practice of placing an object or figure in its natural setting. This was a turning point for the evolution of landscape representation, as the setting provided the initial reasoning for realistically portraying the landscape. From looking at manuscript illumination from England and France, it is clear that as early as the beginning of the fourteenth century, Northern painters were creating highly imaginative, artistic, and naturalistic studies of nature from direct observation, and they were doing this within a well developed stylistic framework.

Northern painters also led the way with technical advancements involving the use of light and colour and the innovative use of materials such as oil painting. They developed methods that allowed them to better represent visual details such as the interaction of light and colour, and the depiction of clouds and atmospheric perspective. Italian painters like Giovanni Bellini and Leonardo da Vinci emulated Northern techniques and used lighting and colouristic effects to evoke certain moods or times of day. They used these techniques to infuse their settings with emotion and lyricism, to create realistic and profound landscapes. The concept of the idyllic, pastoral landscape from classical poetry reached a new level of appreciation during this time. It merged with another tradition that was rooted in medieval culture and religious ideas, the concept of the earthly and heavenly gardens of paradise. This became the inspiration and context in which the earliest landscapes were typically conceived. The frequent travel and visits to foreign courts led to a continuous flow of ideas among artists, ultimately coalescing in a homogenized style that combined Italian and Northern principles. This phenomenon is identified today as the International Gothic style, and it was within this movement that the development of post-classical European landscape painting originated.

Bibliography

Manuscripts

Bergamo, Biblioteca Civico Angelo Mai, MS VII. 14 (Bergamo model-book)
Cambridge, Fitzwilliam Museum, MS 2-1954 (Bird Psalter)
Chantilly, Musée Condé, MS 65 (Très Riches Heures du Duc de Berry)
Florence, Biblioteca Nazionale Centrale, MS Banco Rari 397 and MS Landau-Finaly 22 (Visconti Hours)
London, British Library, MS Add 74236 (Sherborne Missal)
——, MS Cotton Otho B VI (Cotton Genesis)
——, MS Egerton 747 (Tractatus de herbis)
——, MS Egerton 2020 (Carrara Herbal)
New York, Cloisters, MS 54.1.1a, b (Belles Heures of Jean de France, Duc de Berry)
——, MS 54.1.2 (Hours of Jeanne d'Evreux)
——, MS 69.86 (Prayer Book of Bonne of Luxembourg)
Paris, Bibliothèque nationale de France, MS Fr. 12400 (L'art de la chace des oisiaus)
——, MS lat. 1023 (Breviary of Philip the Fair)
——, MS lat. 10483, MS. lat. 10484 (Belleville Breviary)
Paris, Musée Jacquemart-André, MS 2 (Hours of the Maréchal de Boucicaut)
Vatican City, Biblioteca Apostolica Vaticana, MS gr. 1153
——, MS Pal. Lat. 1071 (De Arte Venandi cum Avibus)

Primary Sources

Cennini, Cennino, *The Craftsman's Handbook*, trans. by D. V. Thompson (Dover Publications, 1960)

The Holy Bible Containing the Old and New Testaments, Authorised King James Version, (Cambridge University Press, 1984), Genesis 2.11

The Holy Bible Containing the Old and New Testaments, Authorised King James Version, (Cambridge University Press, 1984), Song of Songs 2. 1–2, 4. 12

Theophilus, *On Divers Arts*, trans. and ed. by John G. Hawthorne and Cyril Stanley Smith (Dover Publications, 1979)

Vasari, Giorgio, *The Lives of the Artists*, trans. by Julia Conaway Bondanella and Peter Bondanella (Oxford University Press, 2008)

Secondary Sources

Ackerman, James S., 'On Early Renaissance Color Theory and Practice', in *Memoirs of the American Academy in Rome*, 35 (1980), 11–44

Ames-Lewis, Francis,, *Drawing in Early Renaissance Italy* (Yale University Press, 1981)

Ames-Lewis, Frances, and Joanne Wright, *Drawing in the Italian Renaissance Workshop* (Victoria and Albert Museum, 1983)

Arano, Luisa Coglioti, *The Medieval Health Handbook: Tacuinum Sanitatis* (Braziller, 1976)

Backhouse, Janet, *The Sherborne Missal* (University of Toronto Press, 1999)

Bland, David, *A History of Book Illustration: The Illuminated Manuscript and the Printed Book* (University of California Press, 1969)

Brown, Michelle P., *Understanding Illuminated Manuscripts: A Guide to Technical Terms* (Getty Museum, 1994)

Camille, Micheal, *Gothic Art: Visions and Revelations of the Medieval World* (Calmann and King, 1996)

Castelnuovo, Enrico, *I Mesi di Trento: Gli affreschi di torre Aquila e il gotico internazionale*, (Editrice Temi, 1986)

Cavallo, Adolfo Salvatore, *Medieval Tapestries in the Metropolitan Museum of Art*, (Metropolitan Museum of Art, 1993)

Chavannes-Mazel, Claudine A., 'Introduction, Early Writings on Beneficial Plants: Perceptions and Prescriptions. The Web of Written and Illustrated Plant Books from Classical Antiquity to the Invention of the Printing Press' in *The Green Middle Ages: The Depiction and Use of Plants in the Western World 600–1600*, ed. by Claudine A. Chavannes-Mazel and Linda IJpelaar (Amsterdam University Press, 2022), pp. 12–35

Christiansen, Keith, *Gentile da Fabriano* (Ithaca: Cornell University Press, 1982)

Christiansen, Keith, and others, *Gentile da Fabriano and the Other Renaissance*, ed. by Laura Laureati and Lorenzo Mochi Onori (Mondadori Electa, 2006)

Clark, Kenneth, *Landscape into Art* (Harper & Row, 1979)

Cole, Allison, 'The Perception of Beauty in Landscape in the Quattrocento', in *Concepts of Beauty in Renaissance Art*, ed. by Frances Ames-Lewis and Mary Rogers (Ashgate, 1999), 28–37

Collins, Minta, *Medieval Herbals: The Illustrative Traditions* (University of Toronto Press, 2000)

Comito, Terry, *The Idea of the Garden in the Renaissance* (Rutgers University Press, 1978)

Compton, Rebekah, 'The Green Places of Fra Filippo Lippi and Sandro Botticelli' in *Green Worlds in Early Modern Italy: Art and the Verdant Earth*, ed. by Karen Hope Goodchild, April Oettinger and Leopoldine Prosperetti (Amsterdam University Press, 2019), 31–48

Crockett, Lawrence J., 'The Identification of a Plant in the Unicorn Tapestries', *Metropolitan Museum Journal*, 17 (1982), pp. 15–22

Cuttler, Charles D., *Northern Painting: From Pucelle to Bruegel/Fourteenth, Fifteenth, and Sixteenth Centuries* (Holt, Rinehart, and Winston, 1968)

Delancey, Julia A., ''In the Streets Where They Sell Colors': Placing "Vendecolori" in the Urban Fabric of Early Modern Venice', *Wallraf-Richartz-Jahrbuch*, 72 (2011), pp. 193–232

Delumeau, Jean, *History of Paradise: The Garden of Eden in Myth and Tradition* (University of Illinois Press, 2000)

Deuchler, Florens, 'Jean Pucelle: Facts and Fictions', *The Metropolitan Museum of Art Bulletin*, 29.6 (1971), pp. 253–56

Dini, Giulietta Chelazzi, *Sienese Painting: from Duccio to the Birth of the Baroque* (Harry N. Abrams, 1998)

Daley, Brian E., 'The "Closed Garden" and the "Sealed Fountain": Song of Songs 4:12 in the Late Medieval Iconography of Mary', in *Medieval Gardens*, ed. by Elisabeth B. MacDougall (Dumbarton Oaks, 1986), pp. 253–278

D'Ancona, Mirella Levi, *Botticelli's Primavera: A Botanical Interpretation* (Olschki Editore, 2022)

Doquang, Mailan S., *The Lithic Garden: Nature and the Transformation of the Medieval Church* (Oxford University Press, 2018)

Dvořák, Max, *Idealism and Naturalism in Gothic Art*, trans. by Randolph J. Klawiter (University of Notre Dame Press, 1967)

Eco, Umberto, *Art and Beauty in the Middle Ages*, trans. by Hugh Bredin (Yale University Press, 2002)

Ferber, Stanley H., 'Jean Pucelle and Giovanni Pisano', *The Art Bulletin*, 66.1 (1984), pp. 65–72

Fiorani, Francesca, 'The Colors of Leonardo's Shadows' *Leonardo* 41/3 (2008), 271-278, 218

Freeman, Margaret B., *The Unicorn Tapestries*, 2nd edn (Metropolitan Museum of Art, 1983)

Gasparotto, Davide, 'Giovanni Bellini and Landscape', in *Giovanni Bellini: Landscapes of Faith in Renaissance Venice*, ed. by Davide Gasparotto (Getty Museum, 2017), pp. 11–23.

Gearhart, Heidi, 'Transforming the Natural World: Hierarchies of Material in Theophilus' On Diverse Arts' in *Art and Nature Studies in Medieval Art and Architecture* (Courtauld Institute of Art, 2009), 81-94

Giannoulis, Markos, 'The Book of Genesis, in *A Companion to Byzantine Manuscripts*, ed. by Vasiliki Tsamakda (Brill, 2017), 199–206

Gilbert, Creighton, *How Fra Angelico & Signorelli Saw the End of the World* (Pennsylvania State University Press, 2003)

Givens, Jean, 'The Garden Outside the Walls: Plant Forms in Thirteenth-Century English Sculpture' in *Medieval Gardens*, ed. by Elisabeth B. MacDougall (Dumbarton Oaks, 1986), pp. 187–198

Gombrich, E. H., 'Botticelli's Mythologies: A Study in the Neoplatonic Symbolism in his Circle', Journal of the Warburg and Courtauld Institutes, 8 (1945), pp. 7–60

Goodchild, Karen Hope, '"A Hand More Practiced and Sure": The History of Landscape Painting in Giorgio Vasari's "Lives of the Artists"' *Artibus et Historiae*, 32.64, Special issue on the quincentennial of Giorgio Vasari's birth (1511-2011) (2011), pp. 25-40

Goody, Jack, *The Culture of Flowers* (Cambridge University Press, 1993)

Gould, Karen, 'Jean Pucelle and Northern Gothic Art: New Evidence from Strasbourg Cathedral', *The Art Bulletin*, 74.1 (1992), pp. 51–74

Guarnieri, Cristina, 'Lorenzo Veneziano e l'ordine dei predicatori: nuove riflessioni critiche attorno alle tre tele con la Madonna dell'umiltà', in *Lorenzo Veneziano: Le Virgines humilitatis, Tre Madonne "de panno lineo", Indagini, tecnica, iconografia*, ed. by Chiara Rigoni and Chiara Scardellato (Silvana Editoriale, 2011), pp. 19–41

Hall, Marcia B., *Color and Meaning: Practice and Meaning in Renaissance Painting* (Cambridge University Press, 1992)

Haskins, Charles H., 'The 'De Arte Venandi cum Avibus' of the Emperor Frederick II', *The English Historical Review*, 36.143 (1921), pp. 334–355

Henisch, Bridget Ann, *The Medieval Calendar Year* (Penn State University Press, 1999)

Hills, Paul, *Venetian Colour: Marble, Mosaic, Painting and Glass 1250-1550* (Yale University Press, 1999)

Hupe, Eric R., 'In the Midst of a Cloud: Giovanni Bellini and the Optics of the Resurrection', *Predella: Journal of Visual Arts*, 2020, pp. 3–16

——, 'Giovanni Bellini's angelus cristallum: Light, Incarnation, and the London Agony in the Garden', *Artibus et Historiae*, 42.84 (2021), pp. 51–66

Hutchinson, G. Evelyn, 'Attitudes toward Nature in Medieval England: The Alphonso and Bird Psalters' *Isis*, 65.1 (1974), pp. 5–37

——, 'Zoological Iconography in the West after A.D. 1200', *American Scientist*, 66.6 (1978), pp. 675–684

Husband, Timothy B., *The Art of Illumination: The Limbourg Brothers and the Belles Heures of Jean de France, Duc de Berry* (Metropolitan Museum of Art, 2008)

Kirsch, Edith W., 'Introduction, Part II' in *The Visconti Hours*, ed. by Millard Meiss and Edith W. Kirsch (New York: George Braziller, 1972), pp. 21–28

——, *Five Illuminated Manuscripts of Giangaleazzo Visconti* (Pennsylvania State University Press, 1991)

Kyle, Sarah R., *Medicine and Humanism in Late Medieval Italy: The Carrara Herbal in Padua* (Routledge, 2017)

Lacey, Sharon, 'Tinted drawing: Translucency, luminosity, and lumen vitae', in *Colour and Light in the Ancient and Medieval World*, ed. by Chloë N. Duckworth and Ann E. Sassin (Routledge, 2018), pp. 159–171

Leeflang, Micha, and Annabel Dijkema, 'Painting with Plants. The Use of Vegetable-based Dyes in Medieval Manuscripts', in *The Green Middle Ages: The Depiction and Use of Plants in the Middle Ages 600-1600*, ed. by Claudine A. Chavannes-Mazel and Linda IJpellar (Amsterdam University Press, 2023), pp. 110–127

Longnon, Jean, and Raymond Cazelles, 'Introduction' in *The Très Riches Heures of Jean, Duke of Berry*, trans. by Victoria Benedict (George Braziller, 1989), pp. 15–28

Manca, Joseph, 'The Gothic Leonardo: Towards a Reassessment of the Renaissance' *Artibus et Historiae*, 17.34 (1996), pp. 121–158

Marmor, Max C., 'From Purgatory to the Primavera: Some Observations on Botticelli and Dante' *Artibus et Historiae*, 24.48 (2003), pp. 199–212

Matthew, Louisa C., ''Vendecolori a Venezia': The Reconstruction of a Profession', *The Burlington Magazine*, 144.1196 (2002), pp. 680–686

Martindale, Andrew, *Gothic Art: From the Twelfth to Fifteenth Centuries* (Praeger, 1967)

E. Ann Matter, *The Voice of my Beloved: The Song of Songs in Western Medieval Christianity* (University of Pennsylvania Press, 1992)

McAvoy, Liz Herbert, 'Gendered Spaces of Flourishing and the Medieval *Hortus Conclusus*' in *The Medieval and Early Modern Garden in Britain: Enclosure and Transformation, c. 1200–1750*, ed. by Patricia Skinner and Theresa Tyers (Routledge, 2018), pp. 16–38

McGrath, Anthony, 'Light, the Dominicans and the Cult of St. Thomas Aquinas', in *Colour and Light in Ancient and Medieval Art*, ed. by Chloë N. Duckworth and Ann E. Sassin (Routledge, 2018), pp. 145–158

Meiss, Millard, 'Light as Form and Symbol in Some Fifteenth-Century Paintings' *The Art Bulletin*, 27.3 (1945), pp. 175–181

——, *Painting in Florence and Siena after the Black Death* (Princeton University Press, 1951)

——, *French Painting in the Time of Jean De Berry: The Late Fourteenth Century and the Patronage of the Duke* (Phaidon, 1967)

——, *French Painting in the Time of Jean de Berry: The Boucicaut Master* (Phaidon, 1968)

——, 'Introduction, Part I' in *The Visconti Hours*, ed. by Millard Meiss and Edith W. Kirsch (New York: George Braziller, 1972), pp. 7–19

——, *French Painting in the Time of Jean de Berry: The Limbourgs and Their Contemporaries*, 2 vols (G. Braziller, 1974)

Meyvaert, Paul, 'The Medieval Monastic Garden', in *Medieval Gardens*, ed. by Elisabeth B. MacDougall (Dumbarton Oaks, 1986), pp. 23–53

Meiss, Millard, and Edith W. Kirsch, *The Visconti Hours* (Braziller, 1972)

Michalski, Sergiusz, 'Venus as Semiramis: A New Interpretation of the Central Figure of Botticelli's "Primavera"', *Artibus et Historiae* , 2003, 24.48 (2003), pp. 213-222

Michaud Eric, and Hèléne Amal, 'Barbarian Invasions and the Racialization of Art History', *October*, 139 (2012), pp. 59–76 (pp. 67–68)

Nelson, Robert S., 'The Italian Appreciation and Appropriation of Illuminated Byzantine Manuscripts' in *Dumbarton Oaks Papers*, 49, Symposium on Byzantium and the Italians, 13th-15th Centuries (1995), pp. 209-235

Norman, Diana, *Painting in Late Medieval and Renaissance Siena* (Yale University Press, 2003)

Nuttall, Paula, *From Flanders to Florence: The Impact of Netherlandish Painting, 1400–1500* (Yale University Press, 2004)

Pächt, Otto, 'Early Italian Nature Studies and the Early Calendar Landscape', *Journal of the Warburg and Courtauld Institutes*, 13.1/2 (1950), pp. 13–47

——, *Venetian Painting in the 15th Century: Jacopo,Gentile and Giovanni Bellini*, ed. by Margareta Vyoral-Tschapka and Michael Pächt , trans. by Fiona Elliot (Harvey Miller Publishers, 2003)

Panofsky, Erwin, *Early Netherlandish Painting: Its Origin and Character*, 2 vols. (Westview Press, 1953; facsimile repr. Routledge, 2018)

Panofsky, Erwin, *Abbot Suger: On the Abbey Church of St.–Denis and its Art Treasures*, 2nd edn. (Princeton University Press, 1979)

Pearsall, Derek, 'Gardens as Symbol and Setting in Late Medieval Poetry', in *Medieval Gardens*, ed. by Elisabeth B. MacDougall (Dumbarton Oaks, 1986), pp. 235–52

Pearsall, Derek, and Elizabeth Salter, *Landscapes and Seasons of the Medieval World* (University of Toronto Press, 1973)

Pevsner, Nikolaus, *The Leaves of Southwell* (Penguin Books, 1945)

Rawcliffe, Carole, ''Delectable Sightes and Fragrant Smelles': Gardens and Health in Late Medieval and Early Modern England', *Garden History*, 36.1 (2008), pp. 3–21

Robb, David M., *The Art of the Illuminated Manuscript* (A.S. Barnes, 1973)

Roller, Duane H. D., 'Science and the Fine Arts: Reflections of Platonic Idealism and of Aristotelian Naturalism', *Leonardo*, 13.3 (1980), pp. 192–198

Ruff, Allan R., *Arcadian Visions: Pastoral Influences on Poetry, Painting and the Design of Landscape* (Windgather Press, 2015)

Rutherglen, Susannah, ''Resplendent Brushes': Giovanni Bellini's *Resurrection* Altarpiece for San Michele di Murano, Venice', Artibus et Historiae, 38.76 (2017), pp. 9–32

Sassin, Ann, 'Colouring the Dark Ages: Perceptions of Early Medieval Colour in Popular Culture', in *Digging into the Dark Ages. Early Medieval Public Archaeologies*, ed. by H. Williams, H. & P. M. Clarke (Archaeopress, 2020), pp. 31–52

Simson, Otto von, *The Gothic Cathedral: Origins of Gothic Architecture and the Medieval Concept of Order* (Princeton University Press, 1988)

Snyder, James, *Medieval Art: Painting, Sculpture, Architecture, 4th -14th Century* (Abrams, 1989)

Sponza, Sandro, 'Painting in Fourteenth Century Venice', in *Venice Art and Architecture* ed. by Sharon Herson, Trans. Janet Angelini and others (Konemann, 1997), pp. 176–201

Stoddard, Whitney S., *Art and Architecture in Medieval France: Medieval Architecture, Sculpture, Stained Glass, Manuscripts, the Art of the Church Treasuries* (Westview Press, 1972)

Takiguchi, Mika, 'The Prophet Book' in *A Companion to Byzantine Manuscripts*, ed. by Vasiliki Tsamakda (Brill, 2017), pp. 246–257

Thompson, Daniel V., *The Materials and Techniques of Medieval Painting* (Dover Publications, 1956; facsimile repr., 2016)

Tomasi, Lucia Tongiorgi, *The Flowering of Florence: Botanical Art for the Medici* (National Gallery of Art, 2002)

Turner, A. Richard, *The Vision of Landscape in Renaissance Italy* (Princeton University Press, 1966)

Vegas, Liana Castelfranchi, *International Gothic Art in Italy*, trans. by B. D. Phillips (Thames and Hudson, 1968)

Géraldine Victoir, 'Nature in Architecture: The Vegetal World and Architectural Polychromy in Northern France from the Mid-Twelfth to Mid-Fourteenth Century', in *Art and Nature Studies in Medieval Art and Architecture* (Courtauld Institute of Art, 2009), pp. 69–79

Weitzmann, Kurt, and Herbert L. Kessler, *The Cotton Genesis: British Library Codex Cotton Otho B.VI* (Princeton, 1986)

White, Lynn, 'Natural Science and Naturalistic Art in the Middle Ages', *The American Historical Review*, 52.3 (1947), pp. 421–435

Winston-Allen, Anne, *Stories of the Rose: The Making of the Rosary in the Middle Ages* (Pennsylvania State University Press, 1997)

——, 'Gardens of Earthly and Heavenly Delight: Medieval Gardens of the Imagination', *Neuphilologische Mitteilungen*, 99.1 (1998), pp. 83–92

Wood, Casey A., and F. Marjorie Fyfe, 'Translators' Introduction' in *The Art of Falconry: Being the De Arte Venandi cum Avibus*, trans. and ed. by Casey A. Wood and F. Marjorie Fyfe, (Stanford University Press, 1943), pp. xxxv–xlx

——, 'Manuscripts and Editions of the *De Arte Venandi cum Avibus* in *The Art of Falconry: Being the De Arte Venandi cum Avibus*, trans. and ed. by Casey A. Wood and F. Marjorie Fyfe, (Stanford, Stanford University Press, 1943), lvii–lxxxvii

Vaurie, Charles, 'Birds in the Prayer Book of Bonne of Luxembourg', The Metropolitan Museum of Art Bulletin, 29.7 (1971), pp. 279–283