

Frontispiece: M.C. Escher, Cycle (1938).

CHAUCER'S VISUAL WORLD:
A Study of his Poetry and
the Medieval Optical Tradition

2 volumes

Volume 1

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Dedicated to the
Memory of
Elizabeth Salter

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Declaration

Some of the material used in Chapter 8 has previously appeared under my name as 'The Containment of Symkyn: The Function of Space in the Reeve's Tale', ChauR, vol.14 (1979-1980), pp.225-36.

Abstract

Medieval optics, or perspectiva, was a science devoted to the explanation of visual phenomena. By the fourteenth century, it had reached a sophisticated level of discussion and represented the culmination of a thousand years of theory and experiment by Greek and Arab scientists. Because of its concern with light, perspectiva had been eagerly received by Christian authors and soon secured a primary position in the university curricula. From there, the subject percolated to the less specialised authors of encyclopedias and exempla and in so doing reached a large audience. Its treatment of light, vision and space is of especial interest for later developments in literary realism.

Chaucer is known to have read, and to have been influenced by, scientific texts, encyclopedias and exempla. His attention to light, vision and space in particular passages of his poetry finds parallels in the optical texts. In Fragment VIII and Fragment I of the Canterbury Tales, these phenomena attain thematic status. Occasionally, poetry and background text share such closely related interests as to betray Chaucer's probable sources. Rare though they may be at this time in English poetry, Chaucer's optical interests are shared by Jean de Meun, Dante and Boccaccio, with whose work he was well acquainted.

Chaucer's use of optical material becomes more intelligible when placed against the tradition of perspectiva and its lines of influence. Developments in painting, as well as in European

literature, suggest that his interest in optics was part of a larger intellectual and aesthetic movement. The arrival of artificial perspective in fifteenth century Italy was the outcome of a process whereby artists had evolved a repertoire of techniques, based on the eye's natural reaction to visual cues, for creating localised illusions of space. Medieval optical texts provided the final impetus to unify such techniques within a systematic perspective.

Abbreviations

a. Serial Publications

| | |
|--|--|
| <u>AHR</u> | <u>American Historical Review</u> |
| <u>Am. J. Philol.</u> | <u>American Journal of Philology</u> |
| <u>Ann. Med.</u> | <u>Annale Medievale</u> |
| <u>Ann. Wal. Soc.</u> | <u>Annual of the Walpole Society</u> |
| <u>Ant.</u> | <u>Antonianum</u> |
| <u>Arch.</u> | <u>Archeion</u> |
| <u>Archaeol.</u> | <u>Archaeologia</u> |
| <u>Arch. Begriffsgesch.</u> | <u>Archiv für Begriffsgeschichte</u> |
| <u>Arch. Fran. Hist.</u> | <u>Archivum Franciscanum Historicum</u> |
| <u>Arch. Frat. Praed.</u> | <u>Archivum Fratrum Praedicatorum</u> |
| <u>Arch. Gesch. Phil.</u> | <u>Archiv für Geschichte der Philosophie</u> |
| <u>Arch. Hist. Doct. Litt.</u> <u>Moyen Age</u> | <u>Archives d'Histoire Doctrinale et</u> <u>Littéraire du Moyen Age</u> |
| <u>Arch. Hist. Exact Sci.</u> | <u>Archive for History of Exact Sciences</u> |
| <u>Arch. Int. Hist. Sci.</u> | <u>Archives Internationales d'Histoire</u> <u>des Sciences</u> |
| <u>Art B.</u> | <u>Art Bulletin</u> |
| <u>Arts Mag.</u> | <u>Arts Magazine</u> |
| <u>AV. Commun. Rev.</u> | <u>Audiovisual Communication Review</u> |
| BGPM | Beiträge zur Geschichte der Philosophie des Mittelalters |
| BGPTM | Beiträge zur Geschichte der Philosophie und Theologie des Mittelalters |
| <u>Bodl. Libr. Rec.</u> | <u>Bodleian Library Record</u> |
| <u>Bodl. Qu. Rec.</u> | <u>Bodleian Quarterly Record</u> |
| <u>BJA</u> | <u>British Journal of Aesthetics</u> |

Brit. J. Hist. Sci.

British Journal for the History
of Science

Bull. Bibl. Storia Sci.
Matem. Fis.

Buletino di Bibliografia e Storia
delle Scienze Matematiche e
Fisiche

Bull. John Rylands Libr.

Bulletin of the John Rylands
Library

Burl. M.

Burlington Magazine

Byz. Metabyz.

Byzantina Metabyzantina

Cah. Arch.

Cahiers Archéologiques

Cah. Ass. Int. Et. Fr.

Cahiers de l'Association
Internationale des Etudes
Françaises

Cah. Civ. Médiév.

Cahiers de Civilisation Médiévale

CE

College English

Cent.

Centaurus

ChauR

Chaucer Review

Class. Med.

Classica et Mediaevalia

Class. Phil.

Classical Philology

Comp. Lit.

Comparative Literature

CRAS

Centennial Review of Arts and
Sciences

Crit.

Criticism

Cults.

Cultures

Daed.

Daedalus

DAI

Dissertation Abstracts International

E. and S.

Essays and Studies

EETS, e.s.

Early English Text Society, extra
series

EETS, o.s.

Early English Text Society, original
series

EHR

English Historical Review

ELH

English Literary History

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| <u>Endeav.</u> | <u>Endeavour</u> |
| <u>Engl. St.</u> | <u>English Studies</u> |
| <u>ES</u> | <u>Englische Studien</u> |
| <u>FL</u> | <u>Folk-Lore</u> |
| <u>Frühma. St.</u> | <u>Frühmittelalterliche Studien</u> |
| <u>Harv. Th. R.</u> | <u>Harvard Theological Review</u> |
| <u>Hist.</u> | <u>History</u> |
| <u>Int. J. Psychol.</u> | <u>International Journal of Psychology</u> |
| <u>JBAA</u> | <u>Journal of the British Archaeological Association</u> |
| <u>J. Brit. Soc. M. Gl.-Paints.</u> | <u>Journal of the British Society of Master Glass-Painters</u> |
| <u>J. Comp. Lit.</u> | <u>Journal of Comparative Literature</u> |
| <u>J. Eccl. Hist.</u> | <u>Journal of Ecclesiastical History</u> |
| <u>JEGP</u> | <u>Journal of English and Germanic Philology</u> |
| <u>JHI</u> | <u>Journal of the History of Ideas</u> |
| <u>J. Hist. Behav. Sci.</u> | <u>Journal of the History of the Behavioral Sciences</u> |
| <u>J. Hist. Phil.</u> | <u>Journal of the History of Philosophy</u> |
| <u>J. Opt. Soc. Am.</u> | <u>Journal of the Optical Society of America</u> |
| <u>J. Physiol.</u> | <u>Journal of Physiology</u> |
| <u>J. Psych. Norm. Path.</u> | <u>Journal de Psychologie Normale et Pathologique</u> |
| <u>J. Sav.</u> | <u>Journal des Savants</u> |
| <u>JWCI</u> | <u>Journal of the Warburg and Courtauld Institutes</u> |
| <u>JWH</u> | <u>Journal of World History</u> |
| <u>Leon.</u> | <u>Leonardo</u> |
| <u>Libr.</u> | <u>The Library</u> |
| <u>Lit. Hist.</u> | <u>Literature and History</u> |

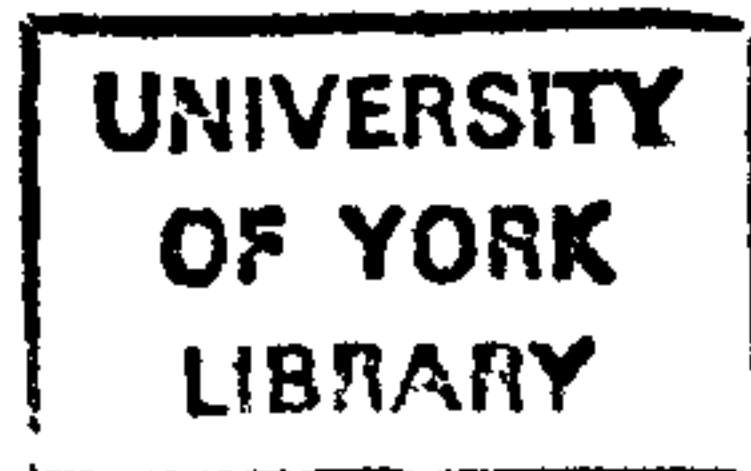
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| <u>MAe</u> | <u>Medium Aevum</u> |
| <u>Man.</u> | <u>Manuscripta</u> |
| <u>Med.</u> | <u>Mediaevalia</u> |
| <u>Med. Hist.</u> | <u>Medical History</u> |
| <u>Med. Hum.</u> | <u>Medievalia et Humanistica</u> |
| <u>Med. Stud.</u> | <u>Mediaeval Studies</u> |
| <u>Mich. Acad.</u> | <u>Michigan Academician</u> |
| <u>MLN</u> | <u>Modern Language Notes</u> |
| <u>MLQ</u> | <u>Modern Language Quarterly</u> |
| <u>MLR</u> | <u>Modern Language Review</u> |
| <u>MLS</u> | <u>Modern Language Studies</u> |
| <u>MP</u> | <u>Modern Philology</u> |
| <u>NC</u> | <u>Nineteenth Century and After</u> |
| <u>Neophil.</u> | <u>Neophilologus</u> |
| <u>NM</u> | <u>Neuphilologische Mitteilungen</u> |
| <u>NQ</u> | <u>Notes and Queries</u> |
| <u>Oxf. Hist. Soc. Pub.</u> | <u>Oxford Historical Society Publications</u> |
| <u>Oxon.</u> | <u>Oxoniensia</u> |
| <u>Philos. Phenom. Res.</u> | <u>Philosophy and Phenomenological Research</u> |
| <u>Phil. Rev.</u> | <u>Philosophical Review</u> |
| <u>Phys.</u> | <u>Physis</u> |
| <u>PLL</u> | <u>Papers in Language and Literature</u> |
| <u>PMASAL</u> | <u>Papers of the Michigan Academy of Science, Arts and Letters</u> |
| <u>PMLA</u> | <u>Proceedings of the Modern Language Association of America</u> |
| <u>PQ</u> | <u>Philological Quarterly</u> |
| <u>Proc. Am. Phil. Soc.</u> | <u>Proceedings of the American Philosophical Society</u> |

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| <u>Proc. Br. Ac.</u> | <u>Proceedings of the British Academy</u> |
| <u>RdM</u> | <u>Revue des Deux Mondes</u> |
| <u>RES</u> | <u>Review of English Studies</u> |
| <u>Rev. Art Anc. Mod.</u> | <u>Revue de l'Art Ancien et Moderne</u> |
| <u>Rev. Hist. Sci.</u> | <u>Revue d'Histoire des Sciences et de leurs Applications</u> |
| <u>Rev. Litt. Comp.</u> | <u>Revue de Littérature Comparée</u> |
| <u>Rev. Phil.</u> | <u>Revue de Philosophie</u> |
| <u>Rev. Phil. Louvain</u> | <u>Revue Philosophique de Louvain</u> |
| <u>Rev. Sci. Phil. Th.</u> | <u>Revue des Sciences Philosophiques et Théologiques</u> |
| <u>Rin.</u> | <u>Rinascimento</u> |
| <u>RINASA</u> | <u>Rivista dell'Istituto Nazionale d'Arceologia e Storia dell'Arte</u> |
| <u>RP</u> | <u>Romance Philology</u> |
| <u>RQH</u> | <u>Revue des Questions Historiques</u> |
| <u>RR</u> | <u>Romantic Review</u> |
| <u>SATF</u> | <u>Société des Anciens Textes Français</u> |
| <u>Sitz. Phil.-Hist. Kl.</u> | <u>Sitzungsberichte der Philosophische-Historische Klasse (Vienna Academy)</u> |
| <u>SP</u> | <u>Studies in Philology</u> |
| <u>Spec.</u> | <u>Speculum</u> |
| <u>St. Dant.</u> | <u>Studi Danteschi</u> |
| <u>Stud. Med.</u> | <u>Studi Medievali</u> |
| <u>Sudhoffs Arch.</u> | <u>Sudhoffs Archiv: Zeitschrift für Wissenschaftsgeschichte</u> |
| <u>Trad.</u> | <u>Traditio</u> |
| <u>Trans. Philol. Soc.</u> | <u>Transactions of the Philological Society</u> |
| <u>TRHS</u> | <u>Transactions of the Royal Historical Society</u> |

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| <u>TRSL</u> | <u>Transactions of the Royal Society of Literature</u> |
| <u>UTQ</u> | <u>University of Toronto Quarterly</u> |
| <u>UTSE</u> | <u>University of Texas Studies in English</u> |
| VBW | Vortrage der Bibliothek Warburg |
| <u>Vis. Res.</u> | <u>Vision Research</u> |
| <u>Vivar.</u> | <u>Vivarium</u> |
| <u>YES</u> | <u>Yearbook of English Studies</u> |
| <u>YULG</u> | <u>Yale University Library Gazette</u> |
| <u>ZdtMG</u> | <u>Zeitschrift der Deutschen Morgenländischen Gesellschaft</u> |
| <u>Z. Oph. Opt.</u> | <u>Zeitschrift für Ophthalmologische Optik</u> |

b. Reference Works

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| <u>Am. Encycl. Dic. Ophthal.</u> | <u>The American Encyclopedia and Dictionary of Ophthalmology</u> , ed. C.A. Wood, 18 vols., (Chicago: Cleveland Press, 1913-1921). |
| <u>Bible (Vulgate)</u> | <u>Biblia sacra iuxta vulgatum Clementinam nova editio</u> , ed. Alberto Colunga and Laurentio Turrado, 4th. edn., (1946; Madrid: Biblioteca de Autores Cristianos, 1965). |
| <u>DSB</u> | <u>Dictionary of Scientific Biography</u> , ed. Charles Coulston Gillispie, 16 vols., (New York: Scribner, 1970-1980). |
| <u>MED</u> | <u>Middle English Dictionary</u> , ed. H. Kurath, S.M. Kuhn and /J. Reidy/, vols. A - L complete, in progress, (Ann Arbor: Michigan Univ. Press, 1954-). |



OED

The Oxford English Dictionary, being a Corrected Re-Issue with an Introduction, Supplement and Bibliography of A New English Dictionary on Historical Principles Founded Mainly on the Materials Collected by the Philological Society, ed. James A.H. Murray, Henry Bradley, W.A. Craigie, C.T. Onions, 13 vols., (Oxford: Clarendon Press, 1933); and Supplement, 2 vols., (1972-1976).

PL

/Patrologia Latina/: Patrologiae cursus completus, sive bibliotheca universalis ... omnium S.S. patrum, doctorum, scriptorumque ecclesiasticorum qui ab aevo apostolico ad usque Innocentii III tempora floruerunt ... series (Latina) prima, ed. J.-P. Migne, 221 vols., (Paris: 1844-1864).

c. Literary Works

BD

Chaucer, Book of the Duchess

Behaingne

Machaut, Jugement dou Roy de Behaingne

ClP

Chaucer, Clerk's Prologue

Comp. s. Val.

Graunson, Complainte de saint Valentin

CoP

Chaucer, Cook's Prologue

CoT

Chaucer, Cook's Tale

CT

Chaucer, Canterbury Tales

CYP

Chaucer, Canon's Yeoman's Prologue

CYPT

Chaucer, Canon's Yeoman's Prologue and Tale

CYT

Chaucer, Canon's Yeoman's Tale

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| <u>Fil.</u> | Boccaccio, <u>Filostrato</u> |
| <u>Fortune</u> | Machaut, <u>Remède de Fortune</u> |
| <u>FrankT</u> | Chaucer, <u>Franklin's Tale</u> |
| <u>FrP</u> | Chaucer, <u>Friar's Prologue</u> |
| <u>GP</u> | Chaucer, <u>General Prologue</u> |
| <u>HF</u> | Chaucer, <u>House of Fame</u> |
| <u>Inf.</u> | Dante, <u>Inferno</u> |
| <u>Intro. PardT</u> | Chaucer, <u>Introduction to Pardoner's Tale</u> |
| <u>KnT</u> | Chaucer, <u>Knight's Tale</u> |
| <u>LGW</u> | Chaucer, <u>Legend of Good Women</u> |
| <u>ManP</u> | Chaucer, <u>Manciple's Prologue</u> |
| <u>ManT</u> | Chaucer, <u>Manciple's Tale</u> |
| <u>MercB</u> | <u>Merciles Beaute</u> |
| <u>MerT</u> | Chaucer, <u>Merchant's Tale</u> |
| <u>Meun.</u> | <u>Meunier et les .II. clers</u> |
| <u>MillP</u> | Chaucer, <u>Miller's Prologue</u> |
| <u>MillT</u> | Chaucer, <u>Miller's Tale</u> |
| <u>Navarre</u> | Machaut, <u>Jugement dou Roy de Navarre</u> |
| <u>NPT</u> | Chaucer, <u>Nun's Priest's Tale</u> |
| <u>Par.</u> | Dante, <u>Paradiso</u> |
| <u>Par. d'am.</u> | Froissart, <u>Paradys d'amour</u> |
| <u>PardT</u> | Chaucer, <u>Pardoner's Tale</u> |
| <u>PardPT</u> | Chaucer, <u>Pardoner's Prologue and Tale</u> |
| <u>ParsP</u> | Chaucer, <u>Parson's Prologue</u> |
| <u>Passio</u> | Bosio, ed., <u>Passio s. Caeciliae</u> |
| <u>Purg.</u> | Dante, <u>Purgatorio</u> |
| <u>Rom. Th.</u> | <u>Roman de Thèbes</u> |
| <u>RP</u> | Chaucer, <u>Reeve's Prologue</u> |

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| <u>RR</u> | Guillaume de Lorris and Jean de Meun, <u>Roman de la rose</u> |
| <u>RT</u> | Chaucer, <u>Reeve's Tale</u> |
| <u>SNP</u> | Chaucer, <u>Second Nun's Prologue</u> |
| <u>SNT</u> | Chaucer, <u>Second Nun's Tale</u> |
| <u>SqT</u> | Chaucer, <u>Squire's Tale</u> |
| <u>SumT</u> | Chaucer, <u>Summoner's Tale</u> |
| <u>TC</u> | Chaucer, <u>Troilus and Criseyde</u> |
| <u>Tes.</u> | Boccaccio, <u>Teseida</u> |
| <u>Theb.</u> | Statius, <u>Thebaid</u> |
| <u>Ven.</u> | Chaucer, <u>Complaint of Venus</u> |
| <u>WBP</u> | Chaucer, <u>Wife of Bath's Prologue</u> |
| <u>WBPT</u> | Chaucer, <u>Wife of Bath's Prologue and Tale</u> |
| <u>WBT</u> | Chaucer, <u>Wife of Bath's Tale</u> |

INTRODUCTION

A. THE SUBJECT

I have chosen as frontispiece a modern lithograph because it states in dramatic and economical terms the problem which this thesis confronts: the aesthetic and historical transition from descriptive flatness to descriptive depth. In Cycle, Escher self-consciously contrasts, at the top and bottom extremes, a realistically receding landscape (with its diminishing hills, gradation of light and winding, narrowing river) with a repetitive abstract pattern of sub-human forms. Landscape and pattern are both executed on the same plane surface so that the illusionistic quality of pictorial space is brought to the viewer's notice. The two pictorial areas are bridged by a figure who, in the upper portion of the picture, runs in animated fashion through the porch of a building. As he descends some steps towards the lower region he loses energy and plasticity. There is progressively less modelling, his hands become limp, and the figure is finally absorbed in a two-dimensional pattern. This process of disintegration is echoed in the design of the architecture. The cubic floor tiles on the balcony draw attention to the principle on which the architectural mass is constructed - through a series of lozenge shapes which, when arranged in particular ways, suggest cubic solidity. Like the human figure, the building is gradually broken down into its component parts until it merges into abstract linear pattern.

Cycle is more than a bravura piece. In his own commentary, the artist points out that certain values attach themselves to pictorial flatness and depth. The building loses its uniqueness as its solidity diminishes, while the figure loses his

individuality as he becomes less three-dimensional. Commenting on the series of which Cycle is a part, Escher says:

We can think in terms of an interplay between the stiff, crystallised two-dimensional figures of a regular pattern and the individual freedom of three-dimensional creatures capable of moving about in space without hindrance. On the one hand, the members of planes of collectivity come to life in space; on the other, the free individuals sink back and lose themselves in the community.

1

He adds, with reference to the human figure in Cycle:

As he rushes downstairs he loses his special quality and takes his place in a pattern of flat, gray, white and black fellow-shapes ... The hilly landscape at the top is intended to display the utmost three-dimensional realism, while the periodic pattern at the lower part of the picture shows the greatest possible amount of two-dimensional restriction of freedom.

2

In the fourteenth century, artists turned their attention to precisely those formal elements which constitute Escher's lithograph - landscape, architectural volume and the human figure - to create more exact copies of visual experience.³ In doing so, they liberated such forms from a predominantly flat and stereotyped existence, conferring on them instead depth and individuality. Cycle may therefore be read in historical terms, as a compressed account of the progression from pattern to perspective in Western art. A similar process took place in descriptive poetry of the fourteenth century. The present thesis is an attempt to study its presence in the work of Chaucer and to relate it to certain cultural influences. Before the subject proper can be broached, however, it is appropriate to provide an account of how it took its present direction.

B. DEVELOPMENT OF THE IDEAS

The thesis began with an interest in the visual aesthetics of the later middle ages. Broadly speaking, I wanted to discover the reasons for the transition in Gothic art from the representation of a conceptual to a perceptual reality. De Bruyne's erudite work, Etudes d'esthétique médiévale,⁴ provided a valuable insight. The third volume describes how, in the thirteenth century, the aesthetics of proportion yielded primacy to the aesthetics of light. De Bruyne observes this development in three types of text: the literary, mystical and scientific.⁵ Quoting at length from Emile Legouis, and drawing supporting evidence from the visual arts, de Bruyne shows how French literature from the twelfth century reveals a growing penchant for all that is splendid and coloured. So much is evident in the Chanson de Roland and in descriptions of feminine beauty.⁶ The mystical strand of the aesthetics of light de Bruyne further subdivides into three categories - neoplatonic, Augustinian and Judeo-Arabic - which by the thirteenth century had formed a common doctrine "fortement néoplatonicienne qui imprègne toute l'atmosphère intellectuelle".⁷ Drawing chiefly on Grosseteste, the De intelligentis and Bonaventure, de Bruyne indicates how important the philosophy of light was in the later middle ages.⁸

In a later chapter, de Bruyne goes on to discuss the physical strand of the aesthetics of light. Following Grosseteste, he explains how, through their luminosity, objects were held to have an effect on each other, their light and colour acting according to geometrical laws.⁹ In a section on the psychology of vision, attention is drawn to the contribution made by the Arab physicist Alhazen's De aspectibus:¹⁰

Au lieu de s'appuyer sur les facultés traditionnelles, d'origine platonicienne ou aristotélicienne, elle envisage directement l'analyse des actes de la vision.

11

Alhazen developed the notion that visual perception is not just the passive response of the eye to the physical world, but one which involves the conscious use of reason, memory and imagination. These are employed to recognise colour, identify forms and their individual details, to compare and distinguish, to select and generalise among the special characteristics of a particular visual array. In naming some twenty-two categories of 'special characteristics', Alhazen also established the criteria on which aesthetic judgements could be made.¹² For they include light; colour, size, shape, distance, density, continuity, texture and transparency. Alhazen adds details of the most favourable conditions under which such characteristics may be judged. De Bruyne points out the potential of such an attitude to the physical world for artistic appreciation and practice:

C'est à ces conditions que l'homme devient capable de juger de l'harmonie et des proportions dans une composition et aussi des qualités simples, - tels la transparence de l'air ou le relief des volumes, les nuances dans le continu ou la netteté des éléments distincts, les jeux d'ombre et de lumière, enfin toutes les qualités que la tradition arabe transmet des critiques et des peintres de l'Antiquité aux perspectivistes du Moyen-Age et par leur intermédiaire aux artistes de la Renaissance.

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The type of writing represented by Alhazen seemed as if it might be the key to understanding the changes in the visual aesthetic of the later middle ages. Mystical writings using the metaphor of light had been present in the Christian tradition for many centuries. It appeared that scientific writings from

outside a Christian culture might have provided a vital stimulus to look at the world with new eyes, valuing it for its actual and not its symbolic content. Alhazen's De aspectibus, printed together with Witelo's Perspectiva, was available in an edition of 1572, the volume being reissued in facsimile in 1972 with an introduction by David C. Lindberg.¹⁴ This, together with Lindberg's edition and translation of Pecham's Perspectiva communis,¹⁵ his various articles and his indispensable Theories of Vision from Al-Kindi to Kepler,¹⁶ served as an introduction to the rich and fascinating field of late medieval optics. My range of reading then expanded to include the Latin versions of other Arab authors such as Hunain, Alkindi, Avicenna and Averroes; their Greek precursors on the science of sight, Plato, Aristotle, Euclid, Ptolemy and Galen; and the major authorities in the Latin West, Grosseteste, Bacon and Witelo. Here was a wealth of material that was available, studied and discussed throughout the thirteenth and fourteenth centuries, providing ample evidence that, in the intellectual sphere at least, the physical and psychological processes of vision and the perception of the three-dimensional world were given considerable attention.

It was one thing to amass information about the interest in visual perception in the later middle ages, quite another to see how that interest might take effect in non-scientific spheres. A reading of E.H. Gombrich's Art and Illusion produced a working hypothesis which, in the event, proved fruitful. In his influential book, Gombrich argues that changes in style are "the result of different modes of seeing the world".¹⁷ He argues against a view of the history of art which would regard a flat style of representation as inferior to one with greater visual

depth. The development of pictorial depth between the middle ages and Renaissance is not a qualitative advance, but a reflection of changing visual expectations. All artists, claims Gombrich, begin with a culturally determined conceptual construct or schema of how the world is to be represented. The schema is then modified to take account of particular details and circumstances.¹⁸ As an example of this practice in the middle ages, Gombrich uses the lion of Villard de Honnecourt drawn, according to the artist, from life.¹⁹ To modern eyes it is a highly unnatural and stylised animal. The reason is that Honnecourt drew his stereotype from a painter's pattern-book and not from models which incorporated a tradition of first-hand observation. He could only draw what he had learnt to draw, or as Gombrich expresses it: "The familiar will always remain the likely starting point for the rendering of the unfamiliar".²⁰ This adage is as true for Leonardo as it is for Villard.

In Gombrich's opinion, the artist of the middle ages (a period which he does not define) introduces relatively few modifications into his basic formulae. A human figure, for example, is not meant to be a particular man but Everyman. The schemata are to be taken as universals, a symbolic language, functioning like a hieroglyph:²¹

To the Middle Ages, the schema is the image;
to the postmedieval artist, it is the starting
point for corrections, adjustments, adaptations,
the means to probe reality and to wrestle with
the particular.

22

Geometrical perspective and its immediate forbears may therefore be considered as new schemata which allow for the inclusion of observational data within a spatial construct imitative of the experiential world.²³ Renaissance art is not less conceptual than

medieval art because it too depended on accepted structures of representation. For instance, the essential physique of the human body had to be mastered from textbook models before particular details were added from life.²⁴

If the artist has a schema, then so does the observer. He too learns to see in a particular way and projects his structure on to a painting and on to the visual world in general. The observer presupposes, on the basis of acquired perceptual experience, what he is going to see:

Perception ... is a process in which the next phase of what will appear when we test our interpretation is all but anticipated.

25

When a painter belies the perceptual habits of the observer, he is likely to be misunderstood. But gradually the observer can learn to read the pictures and transfer readjustments of his schema to the physical world. Gombrich quotes Wilde's provocative statement that there was no fog in London before Whistler painted it.²⁶ Artists influence the way we see the world, but the dialogue between artist and observer, the schemata used on each side and the adjustments made to them, do not occur in isolation. They are intimately affected and determined by prevailing cultural conditions:

The form of a representation cannot be divorced from its purpose and the requirements of the society in which the given visual language gains currency.

27

Gombrich's work supplied a theoretical structure for the ideas on medieval optics which were beginning to develop. I began to regard optical theory as a potentially important influence on the cultural and intellectual assumptions of the later middle ages, as part of what Gombrich terms the "mental set"²⁸ of a period. As

such, it seemed likely to have played a key part in determining the nature of available visual schemata, stimulating a more self-conscious approach to visual perception and enabling a greater interest in the representation of perceptual and experiential subjects. Since my training was in literature I began to wonder whether Gombrich's theory, or my late medieval version of it, could be applied in other areas. It seemed logical to assume that it could. A narrative poet interested in describing the physical world might well betray a reaction to the same influences that affected the visual arts. Here my attention began to focus on Chaucer.

Impressionistically speaking, Chaucer did seem to be concerned to reproduce the effects of a perceptual world; he did seem to show an interest in visual experience; even to use vision, both literally and metaphorically, as a subject for poetry. Clearly, such impressions had to be substantiated in the text, but a subject for research was beginning to take shape in the form of a central question: In responding to and representing the perceptual world, what was Chaucer's 'mental set'? Or, to put it another way: How did Chaucer think he saw? At the same time, I was painfully aware that the 'mental set' of one individual, let alone a period, is an extremely complex matter concerning the interaction of an imperfectly understood past upon an unknown personality. It seemed unjustifiable to isolate one thread in the cultural fabric. Other contemporary trends, such as the growth of nominalism in philosophy, or of personal devotion in religion, could legitimately be seen as equally important, prompting an alert creative spirit like Chaucer's to consider the autonomy of the material world and the experience of the individual. Nevertheless, the compass of

enquiry had to be restricted, if arbitrarily, and I decided therefore to proceed on two assumptions, the truth of which would become apparent: first, that the model proposed by Gombrich for art was applicable also to literature; and second, that Chaucer's work could be brought into a valid relationship with the optical theory current in his day.

A study of Gombrich had prompted an excursion into the psychology of perception, the memorable text here being J.J. Gibson's The Perception of the Visual World.²⁹ This work, together with other books and articles on the perception both of the physical world and of pictures,³⁰ alerted me to the human eye's facility for seeing the world in depth by responding to various learnt signals or "cues".³¹ For instance, to judge relative distances correctly the eye depends on the existence of a continuous visual surface between the observer and the array of visual forms;³² and a gradient of texture, running from coarse to fine, can also help the eye orientate itself in the assessment of near and far.³³ Such analyses of vision had a familiar ring: they were remarkably like the writings on perception already encountered in the medieval treatises on optics, which expressed the same concerns (though not in relation to art) often in a comparably sophisticated way. The closeness of medieval and modern accounts of the experience of perception brought home the fact that, as far as primary responses were concerned, not only did late medieval man face identical problems of accurately explaining the processes of perceiving and moving in a three-dimensional world, but that he was acutely aware of the problems as such. The identification of specific depth cues in writings on perception also emphasised that artists of the fourteenth

century grew more skilful in creating pictorial depth the more they succeeded in transferring the depth cues of the real world, already under discussion in optical texts, to their painted medium. The development of pictorial depth therefore emerged as the gradual understanding and translation into pictorial symbols of visual cues encountered in the physical world, a development of which perspective was only the culmination, a system allowing for the global co-ordination of local effects.

Readings in the psychology of perception activated my own eye. The subject provided an indispensable basis for the analysis of space in fourteenth century painting, a means for assessing the extent to which an individual painter had accepted or added to the growing repertoire of depth cues. But the subject also raised problems for the appraisal of descriptive passages in literature. Clearly, these could not be subjected to the same criteria. Literature works through symbols without intrinsic meaning, which acquire significance exclusively in the minds of writer and reader; the symbols of representational painting, on the other hand, are given their pattern of meaning in relation to a directly analogous visual experience. Chaucer could not reasonably be expected to make much use of texture or proportional diminution as depth cues. The descriptive techniques of literature, like those of art, are restricted by the nature of the discipline. The problem, in specific terms, was how to assess Chaucerian passages for their perceptual content; or, to put it another way, how to determine whether or not Chaucer was introducing innovations into customary accounts of visual experience and the visual world. A straightforward critical discussion of a given passage would not have produced acceptable

results, being fraught with subjective impressions. The problem was resolved through a traditional method of analysis in medieval literature: comparison with known sources and analogues.

In the event, it appeared that there was indeed an objective foundation for asserting that Chaucer's treatment of perception was unusual. It was possible to identify passages dealing with vision in one form or another that were unknown to his source; to show that he deliberately reorganised received material to create a stronger sense of spatial depth; and to argue that, for him, such aspects of the physical world were not just adjuncts of a descriptive naturalism, but subjects in their own right, existing at a thematic as well as a descriptive level. To establish as firmly as possible the full range and implication of perception in Chaucer's work it was decided to concentrate on Fragment VIII and Fragment I of the Canterbury Tales in Robinson's edition.³⁴ The Tales thereby covered have the advantage of including a wide variety of attitudes to and uses of vision and space; and the relative coherence of the individual Fragments makes it possible to indicate the extent to which individual Tales explore complementary aspects of a common theme.

After the literary analysis, the task was to bring Chaucer into a relationship with optical writings. In the absence of any evidence that he studied perspectiva, it was thought best to try and establish an intellectual framework within which he could convincingly be placed. By 'intellectual framework' is to be understood a structure of influence, shared by Chaucer and his audience, which might account for their interest in perception. The place to start was with the seminal works. There followed a study and extensive résumé of key optical texts current in

Chaucer's day, their content being selectively treated in accordance with Chaucer's major perceptual interests: light, vision and space. At the same time I was concerned to give some account of the history of optics and of its importance in the intellectual life of the West during the thirteenth and fourteenth centuries.

It was exciting to discover that certain passages by Chaucer found close parallels in the specialist writings on perspectiva. The general indication was that science and poetry were expressing a common interest rather than that one was exerting a direct influence on the other. For the specialist writings, however close they might come to Chaucer in certain specific instances, did not sufficiently account for his treatment of perception in its wider applications. It was necessary to show that ideas on perception were not restricted to the rarefied atmosphere of technical scientific writings but that they were more generally embedded in the minds of the age. My attention therefore turned to encyclopedias in Latin and the vernacular to discover how well optics survived at a more general level of discussion. It emerged that the subject was given considerable emphasis in such texts, and in a way suggesting that optics was a live issue for the authors and readers of encyclopedias in the later middle ages.

From here it was a short step to sermons, which so often use encyclopedic data as a basis for moral instruction. I was aware from the history of medieval optics that some of the chief practitioners in the West were members of the Franciscan and Dominican orders. According to their teaching, the scientific study of light was justified because the theological tradition regarded light as the creating impulse of God. I hoped that the

esteem in which optics was held in the preaching orders might stimulate its inclusion in sermons. It was gratifying to discover a rich vein of exempla based on perspectiva. These existed both as a significant part of more general compendia and, in one case, as the sole type of exemplum in a lengthy and widespread collection, the Liber de oculo morali of Peter of Limoges.³⁵ Again, both encyclopedias and sermons furnished material similar to certain of Chaucer's passages on visual topics.

A growing body of information now pointed to the fact that ideas on perception had percolated to various intellectual strata, from the specialised Latin instruction of the universities to the well read intelligentsia and to the less literate recipients of vernacular sermons. A third link in the chain of secondary influences was added with a study of three major continental vernacular poets known to Chaucer, Jean de Meun, Dante and Boccaccio. Their different but significant attention to vision supplied literary precedents for Chaucer's interest in the subject. Together with scientific texts, encyclopedias and sermons, there was abundant circumstantial evidence to show that Chaucer's treatment of perception was indeed an integral part of contemporary developments and interests.

As a final detail of the 'intellectual framework' it was decided to state the case for an interest in perception in the ground from which the germ of the thesis had grown, painting. A brief account of prominent works in Italian, Franco-Flemish and English painting of the fourteenth century revealed the progressive interest of artists in representing the facts of vision. In the case of painting, there is direct evidence that artists turned to medieval writings on optics to evolve the first systems of

perspective. Here was a case analogous to Chaucer's which showed how much artistic practice was affected by the 'mental set' of the day.

C. ORGANISATION OF THE THESIS

The thesis in its organisation attempts to frame Chaucer's poetry with the very optical influences which, it is argued, so affected his poetry. It begins with an account of the major optical texts available at his time. The status of perspectiva as an intellectual discipline is stressed (Chapter 1). The following chapter describes the less specialised treatments of the subject to be found in encyclopedias, and goes on to consider sermons as another major channel of influence. Attention is given to the dissemination of and audience for both encyclopedias and optical exempla. (Chapter 2). Chapter 3 attempts to place Chaucer as accurately as possible in relation to the optical traditions previously discussed. Three 'case-studies' examine certain passages of his poetry and provide parallels from scientific texts, encyclopedias and exempla. Chapter 4 discusses the presence of perceptual matters in the French and Italian poetry known to Chaucer and in so doing places him within a more familiar setting. There follows a literary discussion of Fragment VIII of the Canterbury Tales, in which the Second Nun's Prologue and Tale and Canon's Yeoman's Prologue and Tale are considered as explorations of different modes of seeing (Chapter 5). The subsequent three chapters (Chapters 6 to 8) focus on the three Tales of Fragment I of the Canterbury Tales, the Knight's Tale, Miller's Tale and Reeve's Tale, arguing for the importance of optical descriptions and themes both within individual poems and as unifying motifs of the entire Fragment. The final major chapter (Chapter 9) is an historical account of pictorial depth in Italian, Franco-Flemish and English painting of the fourteenth century. The developing

artistic interest in representing the visual world and its depth cues is seen as analogous to similar interests in Chaucer, with both painting and literature responding to common influences. The practical application of medieval optics to pictorial perspective is noted. A concluding chapter summarises the argument and suggests future lines of research.

D. ANTECEDENTS

As far as I am aware, there is no other extended study of Chaucer which considers medieval theories of perception and their influence as a relevant background to the understanding of his poetry.

There are, however, a number of studies which either touch on the subject or offer a methodological approach comparable to the one adopted in this thesis. These may conveniently be divided into three categories according to their major area of interest: medieval literature; art history; and the relations between literature and science in the post-medieval period.

(i) Medieval Literature

Thomas Warton, in his History of English Poetry of 1774-1781, was the first literary historian to draw attention to scientific optics as a background relevant to Chaucer.³⁶ Citing the Squire's Tale (V.225-35), he identifies Alhazen and Witelo and mentions Bacon's Opus maius.³⁷ Warton was alert to the Arabic origin of many Western ideas about optics in literature, but he did not distinguish between the scientific and literary traditions. For him the magic mirrors found in the oriental narratives from which the Squire's Tale is derived, and the speculations of Alhazen on reflection, were bound together as part of the influence of Araby on English literature. In fact, the influences of Arabic poetry go back much further than those of Arabic science. In the Squire's Tale, Chaucer introduced into an oriental romance references to what was to him a 'new' science which by his day was becoming naturalised in the West. This is not to say that the name of Alhazen might not have carried, for his audience, an aura of mystery through the literary associations of the fabulous East. But, in context,

Alhazen is quoted as providing a scientific and matter of fact explanation for what others might find magical and inexplicable. Nevertheless, the fact that Warton did draw attention to the existence of scientific writings related to Chaucer's insertion is in itself remarkable for a time when studies in the history of optics and in Chaucer's sources had not reached their present level of development.³⁸

It is extraordinary, and a tribute to W.C. Curry, that there has been no major comprehensive study of the scientific background to Chaucer since his Chaucer and the Mediaeval Sciences, first written in 1926 and revised in 1960.³⁹ Curry's method, summarised in his 'Introduction', is of especial relevance to the approach adopted in this thesis. Curry's stated purpose is to explore the astrologically based sciences to provide a background.

... against which certain stories and characters created by the poet might with advantage be thrown into strong relief.

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This involves him in considering Chaucer's own relation to the science of his day personally, intellectually and artistically. Curry emphasises that, whatever appeal Chaucer's characters and narratives may now have, they are also the product of their own age, expressing preconceptions long since discarded. Chaucer too "is inescapably a part of the society in which he lives",⁴¹ whose creative activity is necessarily conditioned by the prevailing thought of his day. Curry sees scientific thought as part of a common language, possessed by Chaucer and his audience, by means of which he was able to give expression and meaning to his conceptions. Thus the most passing of references to astrology, for instance, reveals the existence of a large body of scientific assumptions which Chaucer might never discuss in detail but whose

vitality is for that very reason all the more evident. Nor are Chaucer's references to the science of his day of a random nature. They

... often represent in reality the most careful selection of pertinent details from a well-known body of universally accepted scientific principles.

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Such details are typically found to be integral both to the scientific cadre from which they are taken and to the new literary surroundings in which they are placed.

Curry warns against viewing medieval science as naive or primitive. It was as significant to the people of its day as modern science is to us. However antiquated it might now seem, the modern reader of Chaucer must attempt to understand entire systems of medieval science if he is fully to respond to Chaucer's creative use of them. In a most important passage, Curry stresses the difference between scientific and literary sources. Whereas the Knight's Tale, for example, may appropriately be compared with the antecedent work of a particular author, Boccaccio, scientific thought is so much the common property of various authors current in the fourteenth century, and was by nature so traditional and static, that it is tendentious to claim that Chaucer was influenced by one author rather than another. For instance,

If he chose to present on various occasions questions involving the classification and validity of dreams, one cannot be sure whether he obtained his information from contemporary medical men or from the natural philosophers or from the theologians, all of whom were in agreement on fundamentals.

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Curry therefore makes no attempt at all to establish the precise sources of Chaucer's scientific references, but he does maintain that Chaucer is "in accord usually with the best scientific

opinion of his age".⁴⁴ This approach allows Curry to range freely over medieval scientific authors who, although they might not have been known to Chaucer, collectively provide a framework of thought within which Chaucer's allusions can best be understood. For example, in his chapter on the Doctour of Physik, Curry makes reference to Isidore of Seville, John of Salisbury, Hippocrates, Rhazes, Roger Bacon, John of Burgundy, Arnold of Villa Nova and even to a seventeenth century writer, all of whom are used because of the relevance of their ideas and not necessarily because they are known to be directly influential.⁴⁵

Chaucer and science, let alone Chaucer and optics, is a neglected field and there has been little since Curry to offer a coherent framework for a man so evidently fascinated by the scientific explanations of his day.⁴⁶ A corrective to this state of affairs is offered by Manzalaoui in a recent short study of the scientific background to Chaucer.⁴⁷ Lamenting the functions of modern Chaucerian scholars, "in which the scientific material is still, alas, churning around in large and conspicuously unassimilated gobbets",⁴⁸ he indicates the importance of science in Chaucer's work at both the literal and imaginative level:

Science, throughout Chaucer's works, seems not only to provide themes of comic or of touching import: it also provides an objective correlative to the inward characteristics of his personages ...

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Manzalaoui rightly stresses the importance of Boethius' Consolatio philosophiae and Nature's scientific discourse in the Roman de la rose as providing models for the literary assimilation of scientific concepts.⁵⁰ He then goes on to demonstrate the extent to which particular sciences act on Chaucer's poetic outlook.

Here, as might be expected, the discussion centres on astronomy and astrology, cosmology, dreams, medicine, magic, alchemy and physiognomy, which are divided into three categories: experimental sciences, pseudo-sciences and occult sciences.

Manzalaoui's objectives are to discuss the scientific texts which Chaucer is known to have read, to identify the passages in his poetry where their effect is apparent, and to explain their relevance in literary terms. Although he represents the various sciences which Chaucer uses as important components of his poetic outlook, Manzalaoui's exclusive interest in direct influence means that Chaucer's less obvious scientific assumptions are not discussed. Optics is thus given only brief attention as it appears as an influence upon Chaucer in the Roman de la rose, and it is suggested that the reference to perspectiva in the Squire's Tale may be a gibe at those "who seize upon science to demystify life".⁵¹ Yet Manzalaoui's article is salutary in its two major emphases: that Chaucer was unusually receptive to scientific thought, being able, in one instance, to produce a treatise on the astrolabe; and that science had extensive effects on his poetry, where it undergoes imaginative transformations. Both of these factors are of considerable importance in understanding how scientific optics might make its influence felt in his poetry:

... his aesthetic practice shows a very detailed intellectual grasp of the science of his day, a discriminating between its different levels of seriousness and usefulness, a personal preoccupation with its relevance to spiritual and humane truths.

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If writers on Chaucer have not explored the relations between his work and optics, the same is not true of Dante. It is true

that Dante's poetry is a more obvious case for examining this sort of question. Throughout his writings there are specific and sometimes technical descriptions of visual experience. These passages have been studied by Parronchi⁵³ and reference is made to some of them in a later chapter of this thesis.⁵⁴ Of more interest here is the method which Parronchi employs. After defining what the word perspectiva meant in the middle ages he turns his attention to early commentaries on the Commedia, which refer the reader to the science of optics as a means of accounting for Dante's descriptions of visual phenomena.⁵⁵ Proceeding to later commentaries, Parronchi shows how Dante's optical references are generally ascribed either to the commentaries of Albertus Magnus and Thomas Aquinas on the De sensu et sensatu, De anima and Meteorologica of Aristotle, or to the poet's remarkable capacity for personal observation, or to his own scientific researches.⁵⁶

Nardi, writing in 1953, had drawn attention to the importance of perspectiva in providing the correct context for this aspect of Dante's work, as had Tea in 1927.⁵⁷ Parronchi develops their observations, first by stressing the importance of optics in medieval intellectual culture, and then by indicating its potential attractiveness to Dante through its connections with the physical world and through its metaphysical origins.⁵⁸ There follows a methodical study of the Convivio, Rime and Divina commedia in which the author detects a systematic understanding and presentation of perspectiva - hence the title of his article. In the Commedia especially, Parronchi is able to divide his material into the various types of vision as normally presented in the scientific treatises.⁵⁹

Di fatto lungo l'Inferno, il Purgatorio
e il Paradiso, i riferimenti alla teoria
ottica appaiono strutturalmente evidenti,
come è pure evidente che nel poema l'importan-
za assunta dal fatto visivo segue una
sottilissima legge di progressione.

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Most significantly, Parronchi demonstrates that the Aristotelian commentaries of Albertus and Thomas do not adequately account for Dante's treatment of perception. The scientific passages closest to Dante are found instead in Alhazen, Witelo and Bacon.⁶¹ Parronchi offers no external evidence that Dante read the optical works by these authors, but the accumulation of circumstantial evidence carries persuasive force.⁶²

A recent writer on Jean de Meun has shown how, in French poetry as well, scientific optics forms an important background for the better understanding of the Roman de la rose.⁶³ Patricia Eberle claims that, in the second part of the poem, perspectiva provides the poet with a model for his work which he regards as an optical instrument, Le Mirouer des amoureux, showing from various angles of vision the different aspects of love. She shows that Nature's discourse on scientific optics is central to the organisation of the poem and asserts that the writings of Robert Grosseteste are particularly relevant to Jean's purpose, since Grosseteste attached particular importance to perspectiva as a science essential to the study of nature.⁶⁴ Like Parronchi in his study of Dante, Eberle does not offer any proof of Jean de Meun's knowledge of the writings of Grosseteste. The treatment of scientific texts is justified solely through the light they shed on the poetry under discussion.

Eberle's article is included in an issue of the University of Toronto Quarterly which is entirely devoted to 'The Language

of Love and the Visual Imagination in the High Middle Ages'.⁶⁵

The introductory comments of the editor, John Leyerle, indicate that ideas of perception are beginning to be regarded as worthy of attention by students of medieval literature:

The visual imagination is central to the language of love in the late middle ages, and a main impetus came from the new science of optics supplementing the traditional neoplatonic view familiar from the writings of the church fathers.

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There are hints of the same trend in Chaucer criticism. An article written within the present decade by Gerhard Joseph, while making no reference to the scientific background, has as its subject "Chaucer's differentiation of human space"⁶⁷ in Fragment I of the Canterbury Tales. In the Knight's Tale, Joseph distinguishes four enclosures - the prison, grove, temples and lists - which are progressively larger in terms of space and time, reflecting the attempt of Theseus to impose a containing order on the experiences of the Theban knights. The lasting impression, though, is that life is a prison, and this sense of human space contrasts with the literally more restricting interior of the Reeve's Tale which is nevertheless experienced as expansive, as "utterly congenial to human delight".⁶⁸ Joseph argues that the metaphorical use of space in Fragment I is Chaucer's means of expressing the "argument of herbergage" referred to in the Cook's Tale (CT, I.4329). It is

... a controlling principle in the entire structure of Fragment I. Briefly, the Fragment asserts that the quantity and quality of space is relative to the perspective of the human mind contending with it.

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This notion is applicable to other Tales and to the frame of the Canterbury Tales, which places the freely enjoyed domestic space

of the Tabard against the more restricted sense of space which the pilgrims experience as they approach "Jerusalem celestial" (ParsP, X.51).⁷⁰

A recent dissertation by E.A. Dobbs⁷¹ takes a similar approach to Troilus and Criseyde, but less effectively. In her 'Introduction', Dobbs considers developments in painting of the Italian Trecento as useful for establishing a critical vocabulary for the discussion of space in medieval literature. Helpful though artistic analogies may be in assessing Chaucer's treatment of space, little attention is paid to the crucial differences between representational painting and representational literature. Throughout the ensuing study, Dobbs continues to make too easy a transition between space as a term descriptive of one feature of the visual world, and space as a metaphor for aesthetic distancing and organisation. Thus her first chapter detects in Troilus two types of space acting in concert: one is three-dimensional, and found in the realistic settings; the other is two-dimensional and is associated with the 'unreal' conventions of love. The end result is that the meaning of 'space' is stretched almost to breaking point. Acute though her response to three-dimensional space sometimes is,⁷² Dobbs generally sees in it little more than a facet of Chaucer's realism. Its capacity for structuring narrative and giving it meaning is ignored.

(ii) Art History

An important article by Charles Muscatine, 'Locus of Action in Medieval Narrative',⁷³ properly belongs in the preceding section. But since it draws on the findings of art historians, it has a place here as a searching and seminal study of the comparable

relationship of pictorial and narrative space in the medieval period. The studies just cited by Joseph and Dobbs, as well as the present thesis, derive much of their inspiration from it. Following the art historians, Muscatine identifies two types of pictorial space in Gothic art. One is flat or planimetric, tending towards the symbolic representation of ideas and concepts; the other is realistic, involving the illusion of depth and the plastic modelling of figures. The existence together of both types of space produces an aesthetic tension. Muscatine then turns to narrative, observing that narrative, by its nature, always gives rise to some sense of space, for

The sense of place, of the here, the elsewhere, the there, is so deeply embedded in our own patterning of experience that we cannot help imposing it on narrative. 74

The sense of space in narrative does not only lend realism to the descriptions; it can give meaning to the work as a whole.

Muscatine proceeds by describing the spatial content of medieval narratives from different periods. The space of medieval allegory is moral and unnaturalistic. Prudentius' Psychomachia, for example, is of this kind: "This space, suspended somewhere outside the naturalistic world, is completely discontinuous with it".⁷⁵ It is elaborated in Anticlaudianus, where Alan of Lille brings into play a cosmological space in order to articulate such conceptual and spiritual relationships as those between Prudence and God. Here, Alan "creates a kind of spatial epistemology".⁷⁶ In spite of his apparent attempt to describe a cosmological journey, "space itself is not yet felt to be natural or even navigable, despite the continuous navigation".⁷⁷ This is not the case in Dante's Divina commedia, where space is used both in the traditional way to organise a moral and spiritual universe, and

at a local level to place the pilgrim in a tangible realm like that of the experiential world:

The one system uses a patterned, a priori setting to express immutable moral relationships; the other an irregular, humane, naturalized setting to represent psychological and emotional experience. 78

This is what Muscatine means by Gothic tension, and it is found also in Chaucer, notably in his treatment of pilgrimage, which has both ideological and realistic values. Muscatine detects, however, in Chaucer's contemporary, Langland, a spatial anarchy or surrealism. Langland uses various types of space, but "none of these becomes a controlling locus of his narrative".⁷⁹ This sense of instability is associated with the social upheavals of the time. In such ways, Muscatine validates, and puts on a firm footing, the discussion of narrative space in medieval literature.

The importance of Gombrich's Art and Illusion to the present study has already been made clear. Two other works in the history of art must also be mentioned since they also provide theoretical support for the approach adopted here. The first of these, Panofsky's 'Die Perspektive als "Symbolische Form"', published in 1927,⁸⁰ in some ways anticipates Gombrich's work.⁸¹ Panofsky argues that the systems adopted by artists to represent space are the product of particular cultural conditions. The various types of pictorial space should not be evaluated merely as stages in an historical progression towards the more perfect imitation of perceptual reality, but as criteria of style, symbolic forms revealing the beliefs and attitudes of the epoch in which they were constructed.⁸² The unsystematic perspective of classical art reflects the belief of philosophers in the existence of discontinuous space, a universe of disconnected

objects surrounded by a void.⁸³ In the expansive landscapes of Hellenic-Roman painting, the substantiality of separate objects gives way to a more homogeneous play of light and shadow. In this case, luminous atmosphere replaces material space in response to the light metaphysics of neoplatonism.⁸⁴ After the flat and decorative tendencies of Byzantine and Romanesque art, the Gothic era gives new emphasis to the substantiality of objects and bodies, and it is not coincidental that at this time classical optics and Aristotelian ideas of space are encountered afresh.⁸⁵ Once the concept of the universe has been demythologised with the discovery of infinity, then there occurred the breakthrough to systematic perspective, in which the infinite existence of homogeneous space is implied.⁸⁶

The second work is Baxandall's Painting and Experience in Fifteenth Century Italy. Subtitled A Primer in the Social History of Pictorial Style, it attempts to show how

Social facts ... lead to the development of distinctive visual skills and habits: and these visual skills and habits become identifiable elements in the painter's style. 87

Baxandall identifies a number of experiences from social, religious and commercial sources of a type that affected both the viewer's expectations and the artist's practices. It is shown, for example, how fifteenth century society witnessed a marked shift from ostentatious display, especially in clothing, towards an attitude of self-conscious restraint.⁸⁸ In painting, these trends are reflected by the showy use of precious pigments, followed by their neglect and an insistence instead on technical skill. A discriminating eye in the early part of the century would tend to 'evaluate' the picture in terms of its use of

expensive colours like ultramarine, whereas in later decades technical skill would be a more important criterion. Both types of visual response are lost to the modern viewer since both were produced by fifteenth century conditions.

Baxandall emphasises that, although the physiological processes of vision remain unchanged, the interpretation of visual experience is affected by personal and professional activities, as well as by larger cultural factors. Through such influences the individual develops his own "cognitive style"⁸⁹ (similar to Gombrich's 'mental set'). In offering an anatomy of cognitive style in fifteenth century Italy, Baxandall asserts that paintings mirror the cognitive style of their time. In fact it is by prompting the exercise of acquired visual habits that pictures please the viewer.⁹⁰ In this respect Baxandall is stating an opposite case to Gombrich. For Gombrich, paintings are important as active agents in forming our visual response to the objective world; Baxandall sees paintings as more passive, as documentary data which are the recipients of prevailing habits of perception.⁹¹

For the mercantile and professional class which patronised and viewed the work of Italian artists of the fifteenth century, paintings existed to convey religious meaning, of both an intellectual and emotional variety, in as vivid a way as possible. Paintings were therefore designed to meet this primary expectation. As objects of meditation, they presented versions of images which the onlooker might already have imagined in the course of his or her devotional practices. Baxandall sees such painting as a "relic of cooperation"⁹² between artist and public, an artistic response to a current visualising activity undertaken

both privately and in public response to the exhortations of preachers.

In more detailed ways, too, the public would bring to a picture visual expectations learnt from a wide variety of sources. The use of bodily and manual gestures in preaching, for example, would accustom the observer to interpret painted postures as a sign language integral to the meaning of the composition.⁹³ The experiences of religious drama and dancing would likewise allow the discriminating viewer of a painting to respond to particular figure groupings in a more understanding way, to read "physical movements as a reflex of mental movements".⁹⁴

Codes of colour symbolism, inherited from earlier centuries, played their part in this interaction between public and painter, and so too did the newer professional practice of gauging.

Embedded in middle-class curricula were courses of instruction in computing the volumes of containers - sacks, barrels, bales - in which produce was bought and sold. The development of this analytical skill, Baxandall suggests, would enable the viewer of a painting to be particularly acute in his response to volumes and solids and other components, such as paved floors, which rest on a geometrical method of construction:

The geometrical concepts of a gauger and the disposition to put them to work sharpen a man's visual sense of concrete mass.

95

Similarly, the study of geometrical proportions, necessary for the calculation of profit, equipped the eye with a means of appreciating both the structure of complex forms and their spatial relations.

Finally, and most appositely for the present study, Baxandall suggests that pious literature was also important in accentuating

the vital activity of the outer and inner eyes. Discussing a work written in 1498 by Bartholomeus Rimbartinus, De deliciis sensibilibus paradisi, he notes that the vision of the blessed was held not to be impeded by the contingent circumstances of earthly perception, such as intervening bodies or the diminishing effect of distance.⁹⁶ The same idea had previously been expressed in Dante's Paradiso. Peter of Limoges' De oculo morali is also important in this respect since it attaches spiritual values to the phenomena of vision and hence to their representation in art.⁹⁷

(iii) Studies of Literature and Science in the Post-Medieval Period

If art historians have not hesitated to indicate possible links between scientific knowledge and painting in the post-medieval period, the same is also true of historians of literature. This survey of methods parallel to those adopted in the present study will therefore conclude with summaries of some works which study the relations between science and literature from the sixteenth to eighteenth centuries. Such an approach to literature is of relatively recent origin. Writing in 1937, Coffin felt that he could not discern it with any clarity before the 1920's.

Interestingly, he draws attention to Curry's Chaucer and the Mediaeval Sciences as one of the significant books, and sees it as part of a new movement:

The scholar, sensitive to the increasingly intimate effects of science - whether for better or for worse - upon our common lives, our habits of thought and modes of expression, has discovered the existence of a great province of unexplored history - the contribution of scientific learning to both the form and the matter of much of the world's literature.

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Coffin's own concern was to place John Donne in relation to

the scientific thought of his time, but the 'Introduction' to his book makes certain distinctions between science and literature which are generally applicable. Science, he says, "can only describe the forms of existing things, but poetry attempts to say something about the very nature of reality".⁹⁹ Science considers the material universe from a factual point of view, but literature gives value to scientific fact. Both fact and value coincide in human experience and the poet's physical world is enriched as a consequence of new scientific discoveries and new scientific languages. In some cases, the poet can participate in the discoveries of science, for instance with the aid of optical instruments like the telescope and microscope, which enable him to perceive new worlds. It is then that the poet, stimulated by personal access to scientific knowledge, is able to use such data for objective correlates of his experience, as language to give experience its shape and form. In the ninth chapter of John Donne and the New Philosophy, Coffin provides an example of this process at work. The telescope, he argues, gave space "a kind of concrete reality by bringing the immensity of the heavens into proximity to human experience".¹⁰⁰ Now Euclidean geometry is the scientific means of investigating the properties of space, and it is with this scientific background in mind that Donne's metaphorical use of geometric figures becomes explicable. He is using the new sense of space as an analogy for the dimensions of the soul's relation to God, the figures of geometry providing a descriptive language.

Marjorie Hope Nicolson has been one of the chief advocates of approaching literature through the scientific thought of its

time. Her Mountain Gloom and Mountain Glory¹⁰¹ is a major exposition of how the attitudes of poets change in accordance with the prevailing winds of science. Nicolson attempts to solve the riddle of why mountains, in the poetry of the seventeenth century, are treated in a deprecating manner, but then become the cause of rapture in the eighteenth century. She maintains that

Like men of every age, we see in Nature
what we have been taught to look for,
we feel what we have been prepared to
feel.

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In identifying the forces which changed responses to Nature in the eighteenth century, Nicolson is careful to represent scientific thought within a wider cultural sphere. The same symptoms of change are apparent in art as well as in literature, as the neoclassical ideal of symmetry and order, in which mountains are seen as warts on the face of Nature, gives way to a Romantic ideal of asymmetry, irregularity and diversity of which mountains are the epitome. Such "dynamics of taste"¹⁰³ cannot be accounted for by scientific developments alone. The picture is more complex: "Changes in taste in one field accompany or influence changes in others".¹⁰⁴ But it is possible to identify what is distinctive and pervasive about this major shift in taste towards mountains. Nicolson sees it in terms of a change in perceptual habits: "Visual qualities were emphasised. Imagination was learning to 'feel through the eyes'".¹⁰⁵

Nicolson notes that the Bible contains both adverse and admiring attitudes towards mountains, but in a particular epoch only one kind of biblical attitude is stressed.¹⁰⁶ In the sixteenth century, theologians held that mountains were created after the Flood, signifying the changed state of the world after

man's Fall. This earlier notion, that mountains were the symptoms of a decay infecting all of the sublunary realm, was upset by Galileo's telescopic discoveries. Decay, according to the evidence he provided, existed on a universal scale. In the early seventeenth century, orthodoxy responded to the challenge by substituting the idea of mutability for that of decay. Change was not linear but cyclic. Things died and decayed only to be renewed. Mountains rose only to be humbled into valleys.¹⁰⁷

Galileo's discovery of spots on the sun and moon, and of planets never seen before, implied the existence of an infinity of mutable worlds in an infinity of space. Gradually, philosophers and theologians assimilated his discoveries until they proposed an identity between space and God.¹⁰⁸ Furthermore, since the universe was evidently diverse and various, these qualities also became part of the response to God and his works. Within this new world picture, current by the early eighteenth century, mountains were essential components. They diversified and made irregular the face of the earth;¹⁰⁹ and at the same time, as the largest objects known to man, became the receptacles of the new admiration for grandeur and vastness.¹¹⁰

The publication of Newton's Opticks in 1704 also exerted a considerable influence on changing perceptions of the physical universe. As Milton's great cosmic scenes "were his heritage from the telescope",¹¹¹ so too Newton's work spawned a new type of descriptive poetry in which the exercise of the imagination was associated with the exercise of the powers of sight.¹¹²

This idea of Nicolson is developed in her Newton Demands the Muse,¹¹³ written while Mountain Gloom was in progress.¹¹⁴ In the former work, she presents detailed evidence for the

assimilation and effect of the Opticks in early eighteenth century poetry. Newton is there mentioned by name and acknowledged as the source of new perceptions. The processes of vision and the behaviour of light are now considered topics worthy of poetic treatment. Light and vision are also used to enlarge the poet's figurative vocabulary. Certain poems provide a model for using the Opticks in such ways.¹¹⁵ The assimilation of Newton's work is also made easier through the existence of popular expositions, including those found in encyclopedias.¹¹⁶ The prism, in particular, gives rise to new figures of speech.¹¹⁷ To the descriptive poets of Newton's age, light is beautiful because it is the source of colour,¹¹⁸ and "With Newtonian eyes, the poets discovered new beauties in the most familiar aspects of nature".¹¹⁹ Nicolson goes on to claim that "There is hardly a descriptive poet of the period who does not show an interest in the laws of light".¹²⁰

I read Newton Demands the Muse after the bulk of this thesis was complete. It was interesting to discover that the structure of influence described by Nicolson was substantially the same as that which obtained for the effect of medieval optics on Chaucer. This suggested that the effect of science on poetry generally conforms to a set pattern, imposed by the need for intermediary channels by which specialised knowledge can be communicated to the poet and his audience. The influence of Alhazen on medieval poetry is roughly analogous to that of Newton on English poetry of the early eighteenth century, although the impact of the De aspectibus took effect over a much longer period. As in the later period, certain poets (notably Jean de Meun) are to be found at an early stage using optics as a legitimate subject,

while medieval encyclopedists also render perspectiva assimilable by simplifying it for general consumption. In the medieval period, preachers also play a popularising role by using optical exempla in their sermons. Through such secondary lines of influence, optics becomes accepted and useful in poetry, being used for both literal and metaphorical purposes. Its status in the middle ages is underpinned by a theological tradition of light metaphysics. Subject to these influences, poets and their audiences begin to represent and to see their world in a new way. It is now time to examine these processes in detail.

CHAPTER 1:

THEORIES OF LIGHT, VISION AND SPACE FROM PLATO TO PECHAM

A. INTRODUCTION

Space is abstract, but it is a visual phenomenon. Clear vision in turn depends on the presence of light. The eye infers the existence of space by responding to certain visual cues. It is by interpreting such data as the play of light and shadow, gradients of texture and the relative intensities of colours that a human being is able to move with assurance through a three-dimensional world. Generally, it may be said that there are three types of space normally encountered by the human eye: displaced, contained and intervening. By the first category is meant the space occupied by, say, a sculpture, where a specific volume of air is displaced by its presence. The second type of space is that defined by the containing walls of a room or similar hollow place. The third is the measure of distance between objects, or between the perceiving eye and an object.

By the mid-fourteenth century in science, literature and the visual arts there is a well established interest in these phenomena of light, vision and space. Enquiries into the nature of perception had been under way for a century or more. Chaucer, in his own way, was to give expression to this feature of contemporary thought. His interest in ^{light,} vision and space is symptomatic of a widespread and well established fascination with the activity and function of the eye. To substantiate this assertion, and to place Chaucer in an appropriate setting, it is first of all necessary to examine treatises on optics written, in most cases, long before the fourteenth century. They are the texts which were accessible in Chaucer's day, containing the

theories which were the subject of discussion and research. They are now more familiar to the historian of science than to students of Chaucer, but they are of the first importance if we are to understand the conceptual framework within which Chaucer was able to operate when he chose to include light, vision and space as significant features of his created worlds.

'Optics' is the proper equivalent for the medieval Latin term perspectiva, but its use as a synonym needs clarification since modern optics is far removed from the subject as it was known in the middle ages.¹ Perspectiva or 'optics' in its medieval sense is a multifold discipline which includes the study of the nature and transmission of light; the behaviour of light rays according to the laws of reflection and refraction; the physiology of the eye; and the psychology of perception.² These meanings of perspectiva, literally 'seeing clearly', were of regular occurrence from before 1233 until the fifteenth century.³ Perspectiva denoted, in general terms, 'the science of sight'⁴ and formed a convenient title for books devoted to vision in its various aspects. These works were customarily divided into three parts: on direct vision (optica), on reflection (catoptrica) and on refraction (dioptrica).⁵ Of these the first component is of most relevance to the present study.

In what follows, the focus of discussion is the treatment of light, vision and space in some of the key optical treatises available in the fourteenth century. Since these phenomena are by their nature closely related, I have chosen not to take a thematic approach but to present the material historically, beginning with Plato and ending with Pecham. Relevant passages

from each author are considered together with a brief opening account of the dissemination of specific works. This arrangement has the advantage of allowing for the division of the chapter into three historical and cultural groups - Greek, Arabic and European - which reflect the origins, development and culmination of the medieval optical tradition. As a newcomer to the history of medieval optics, I cannot pretend that the coverage given in the following pages is exhaustive. What I have attempted is an enquiry into some aspects of optical theory relevant to the task in hand. Wherever possible I have quoted from modern editions of medieval Latin texts in order to present the subject matter as accurately and authentically as possible. Where translations and commentaries exist I have also made full use of them. Editions, translations and commentaries are documented in the footnotes.⁶

B. THE GREEK TRADITION⁷

(i) Plato: 427-347 B.C.⁸

Until the mid-twelfth century, the Timaeus was the sole dialogue of Plato known to the West. The book had attracted commentators since c.300 B.C.,⁹ and a Latin translation of the first fifty-three books and of a commentary by Macrobius was undertaken by Chalcidius in the fourth century.¹⁰ There is evidence of a renewed interest in the Timaeus in new commentaries of the ninth and twelfth centuries.¹¹ About 1156 Henricus Aristippus (d.1162), then Archdeacon of Catania in Sicily, translated from the Greek the Meno, thus making available to European scholars the second of Plato's works which discusses vision. The translation of Henricus, together with that of the Phaedo which he executed at the same time, remained in current use until the fifteenth century.¹²

According to Plato in the Timaeus, the space between the eye and a visible object is traversed in the following way.¹³ There is within the human body a pure fire which flows out through the pupils in a smooth, uninterrupted and undivided stream. This internal fire is of the same nature as daylight, so that when one encounters the other, they coalesce:

Itaque cum diurnum iubar applicat se visus fusioni,
tunc nimirum incurrentia semet invicem duo similia
in unius corporis speciem cohaerent, quo concurrent
oculorum acies emicantes quoque effluentis intimae
fusionis acies contiguae imaginis occursum
repercutitur.

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This one fused body is capable of receiving and transmitting to the soul a third form of light which comes from the visible object. When this happens, motions are produced which reach the soul,

resulting in the sensation of seeing.¹⁵ At night, the visual ray is extinguished and sight is no longer possible.¹⁶

In a part of the dialogue not translated by Chalcidius it becomes clear that the light from the visible object is colour, described as a flame which streams from every sort of body.¹⁷ Now each element has an individual spatial structure which takes the form of a geometrical figure. Fire has the structure of a pyramid, and so does the visual ray. Flame-like colour is thus particularly effective as the perceptual stimulus, for

... as like is known by like, only the same pyramidal figures of the visual ray are able to grasp them /the pyramidal forms of the particles of fire/. 18

The colour particles are of various sizes: some smaller than the particles of the visual ray, some larger and some equal. On coalescing they cause different motions in the soul and give rise to the sensation of different colours, the smaller particles producing white, the larger black and the equal particles transparency.¹⁹ This notion is endorsed in the Meno, where Socrates defines colour as "effluxio figurarum visui commetibilis et sensibilis".²⁰

(ii) Aristotle: 384-322 B.C.

Three works by Aristotle in which vision is discussed at some length were circulating in the West from the late twelfth to early thirteenth centuries.²¹ These were the De anima, De sensu and Meteorologica.²² De anima was first translated in the second quarter of the twelfth century by Jacobus, a cleric working in either Constantinople or Italy; it is cited by Hermann of Carinthia (fl.1138-1143) in 1143; there are traces of a version

from the Greek at the end of the century - a translation which was later revised, probably by William of Moerbeke (fl.1250-1275); and translations of both De anima and of a commentary on it by Averroes were undertaken by Michael Scot in the early 1200's.²³ De sensu, part of Parva naturalia, is mentioned by Daniel of Morley in the last quarter of the twelfth century. A version from the Greek was revised in the next century by William of Moerbeke.²⁴ The subject matter of the Meteorologica was familiar to Hermann of Carinthia in the mid-twelfth century. The fourth book was translated from the Greek by Henricus Aristippus, an administrator at the Sicilian court until 1162,²⁵ while the first three books were rendered into Latin, probably from a ninth century Arabic version, by Gerard of Cremona (fl.1150-1187). A further three chapters, translated from the Arabic, were added by Alfred the Englishman (fl. late 12th cent.). William of Moerbeke translated the first four books from the Greek, in about 1260.²⁶ By the mid-thirteenth century this "much glossed work"²⁷ had appeared in a French version.

Aristotle's notions of perception have to be gathered together from his scattered statements on the subject.²⁸ In De anima he states that visible objects affect the eye through colour, which lies on their surfaces.²⁹ In order to be seen, colour requires light, which actualizes the transparent medium, usually air, between the eye and the object.³⁰ Then

... color movet diaffonum sicut, aer cum
 continuatur, movetur sensus ab eo.

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So the eye responds not to colour itself but to what comes between. If there were no continuous transparent medium, but

only void, nothing would be seen.³² Aristotle thus focuses attention on the distance between the observer and the object of vision and proceeds to argue that the presence of a medium, transferring the object of perception to the body, has analogues in the other senses.³³

In De sensu,³⁴ Aristotle rejects the idea, which he attributes to Empedocles and Plato, that the process of vision is due to an extramission of light from the eye in the form of a visual ray;³⁵ he also rejects a theory of reflection as the cause of sight, as put forward by Democritus.³⁶ Aristotle's own statement on what takes place in vision occurs at a slightly later point in the treatise:

... sensationem gigni motu, quo movetur "medium sensationis" sub influxu obiecti sensibilis; aliis verbis, eam gigni tactu /cum medio/ et non effluviis.

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This seems to suggest that the process is the reverse of that attributed to Empedocles and Plato, that in reality the visual stimulus originates at the object from where, through the transparent medium, it impinges on the eye, for "sive lumen sive aer agat partes 'medii' inter obiectum visum et oculum, causa visionis est motus, qui fit per illud".³⁸ According to Aristotle the eye itself consists of a translucent substance, so that light can exist within the eye even if it does not issue forth.³⁹

Considering how the distance from sense-object to observer is crossed, Aristotle asks:

... utrum sensibilia aut motus a sensibilibus profecti ... perveniant prius ad dimidium distantiae /inter obiectum et nos/ ...

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The answer is that they do in the case of sound and smell, but

not in the case of light. It is true that a physical relationship must exist between observer and object; but light, unlike sound and smell, is not a movement since it actually constitutes the object. Light is a cause of seeing, not an effect; the eye apprehends objects instantaneously.⁴¹

Aristotle also turns his attention to visible objects in themselves, though without specifically considering their depth or solidity. He asserts that the surface limit of the translucent in a determinate body is colour;⁴² that the apprehension of objects in space is a function of reason acting together with sense perception;⁴³ and that although real dimension and magnitude can be known they are not conveyed in a simple act of perception, which only reveals apparent size.⁴⁴

It is curious that in the Meteorologica Aristotle appears to support an extramission theory of sight. He comments on the appearance of water when struck: "Videtur enim aquam micare dum pellitur, quod aspectus ab ea ad aliquid quod sit lucidum referatur".⁴⁵ In a discussion of the rainbow, the departure of visual rays from the eye again seems to be implied:

... aspectum quidem referri ut ab aqua, sic etiam ab aere caeterisque omnibus quae sint levi planaue extremitate ... 46

and

... omnia quae procul absunt, nigriuscula videntur, quod eo acies oculorum non perveniat. 47

The explanation of this discrepancy may be that the Meteorologica is of a relatively early date, or that it is not an authentic work.⁴⁸ In either case, its views on sight do not seriously affect the theory established in De anima and De sensu.⁴⁹ The phenomena of the rainbow and halo with which the Meteorologica

in part deals were to become familiar topics in medieval works on optics.⁵⁰

(iii) Euclid: 323-285 B.C.⁵¹

Euclid's Optica is mentioned in the Sicilian translation of the Almagest of about 1160,⁵² and by Henricus Aristippus at about the same time in his prologue to the translation of Plato's Phaedo.⁵³ Euclid's work may have been translated into Latin from the Arabic by Eugene of Palermo (c.1130-c.1203), an emir or admiral in the royal administration of the Sicilian court.⁵⁴ There were at least two translations from the Arabic, known as Liber de aspectibus and Liber de radiis visualibus, of which the second was more widely known.⁵⁵ A Greek text of the Optica was also translated into Latin, probably in Sicily, in the late twelfth or early thirteenth century.⁵⁶ This became known as Liber de visu and was the most influential of the Latin versions of Euclid's Optica. It was used by later writers on perspectiva, including Bacon, Witelo and Pecham.⁵⁷

Euclid is the father of geometrical optics.⁵⁸ He substituted for the general idea of the emission of light from the eye the concept of rectilinear rays whose behaviour obeyed the laws of geometry. De visu is in one sense a mathematical abstraction from the experience of vision which ignores its physiological and psychological aspects.⁵⁹ At the same time, Euclid's account of the behaviour of light rays provided posterity with a robust model for understanding the perception of objects in space. Euclid does not deal extensively with the solidity of objects. The assumptions with which De visu begins are concerned more with intervening space, with "the appearance

of an object as a function of its spatial relationship to the observer".⁶⁰

In the first assumption it is stated that "... ab oculo eductas rectas lineas ferri spacio magnitudinum immensarum".⁶¹ The space encompassed by this sheaf of rays is in the shape of a cone. "verticem quidem in oculo habentem basim vero ad terminos conspctorum".⁶² In order to be perceived, an object must fall within the cone of vision and intercept the visual rays; the more rays it intercepts, the more clearly it is seen; when an object forms the base of the visual cone, then the larger the object, the greater the angle at the apex of the cone.⁶³ There are gaps between the visual rays, and if an object is so small that it falls between two of them, then it will not be seen.⁶⁴

Theisen has argued that De visu is dependent on classical notions of perspective which in ancient art and scenography were used for the representation of three dimensions on a plane surface.⁶⁵ Euclid's propositions are an attempt to account for the perception of depth for "... this is the theme of the work, namely the visual perception of objects in space".⁶⁶ In the fourth, fifth and sixth assumptions, Euclid demonstrates his interest in the relation of the observer to visual forms:

Et sub maiori quidem angulo visa maiora apparere, sub minori vero minora, equalia autem sub equalibus angulis visa.

Et sub elevatioribus radiis visa elevatiora apparere, sub humilioribus vero humiliora.

Et similiter sub dexteroribus quidem radiis visa dexteriora apparere, sub sinistrioribus vero sinistriora.

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Subsequent propositions develop these statements by considering the connections between apparent size and distance. An increase

in distance leads to a proportional diminution in size; the nearer of the two equal objects or distances appears to be the larger; objects seem to increase in size as the eye approaches them; objects that gradually increase in size will be thought to be advancing towards the observer.⁶⁸ As well as dealing with distance and apparent size, Euclid also devotes four propositions to the measurement of actual height, depth and length.⁶⁹

De visu is a partial, not a comprehensive account of vision: it bypasses the problem of the source of the visual rays, the direction in which they move being a largely irrelevant consideration in the geometry of sight; Euclid ignores light as a phenomenon in itself; and he gives no account of the physiology or psychology of perception. Euclid systematically and extensively considers different visual effects, and if he reduces the eye and visual stimuli to lines and points, this does not entail a complete divorce from perceptual experience. It is because the experience is accounted for exclusively in geometrical terms that the explanation seems so unsatisfactory. De visu is a treatise on perspective, in which the complex processes of vision are conveniently represented through geometrical symbols.⁷⁰ But it should not be forgotten that the starting points are visual phenomena. An early proposition states that "Unumquodque visorum habet longitudinem spacii quo facto non iam videtur".⁷¹ Euclid also accounts for the apparent convergence of parallel lines, the apparent incline of plane surfaces above and below the level of the eye, and the amount of surface area of a sphere, cylinder and cone that can be seen with one eye and with two.⁷²

(iv) Ptolemy (Claudius Ptolemaeus): c.100-c.170 A.D.

Claudius Ptolomaeus, author of the Almagest, also composed a treatise on optics.⁷³ It was translated into Latin as the Optica or De aspectibus by Eugene of Palermo between 1156 and 1160.⁷⁴ He used not a Greek text but an Arabic translation of a defective Greek original.⁷⁵ Thus the Latin version, which is the only surviving text of Ptolemy's work, is wanting the first book, while the fifth book is cut short. The second book deals with direct vision, both monocular and binocular;⁷⁶ the third and fourth books consider reflection; and the fifth, refraction.⁷⁷ Although never as widespread as Euclid's De visu, Ptolemy's work was circulating in the West by the mid-thirteenth century.⁷⁸

It is unfortunate that the first book of Ptolemy's Optica is lost, since it evidently contained material on the passage of visual rays between the eye and its object. However, Lejeune has effected a partial reconstruction of the lost book⁷⁹ and on the basis of this it is possible to form some estimate of Ptolemy's theory of vision. Light, according to Ptolemy, is not emitted from the eye, as Euclid suggested, in the form of separate rays. If this were so, then we should see points; and since points are without extension, we should see nothing.

Oportet autem cognoscere quod natura visibilis radii in his que sensus consequitur, continua est necessario et non disgregata...Quoniam, cum id quod de radiis cadit super diametros eorum per totam basem, sint singuli radii, et quod ex unoquoque ipsorum radiorum comprehenditur, sit punctus, et que sunt inter ipsos punctos distantie habeant magnitudinem, non debet videri id quod est in distantis, quia radius visibilis non cadit super illas. Nec puncti etiam videbuntur, cum non habeant quantitatem neque subtendant angulum. Erit ergo omnis res illa invisibilis.

The eye ray is a rectilinear massed flux essentially of the same physical nature as external light.⁸¹ It forms itself into a cone, within which obtruding objects can be seen.⁸² Ptolemy noted that objects near the axis of the cone, which is directed at the point of fixation, are more clearly visible than those near its margins.⁸³ He placed the apex of the cone at the centre of curvature of the cornea and its base on the visual field.⁸⁴ Ptolemy's theories seem to be a refinement of Euclid's, but Ptolemy went beyond the geometrical limits of De visu and paid close attention to experiment,⁸⁵ to physiology and to psychology.

Consequently, Ptolemy's attitude towards the third dimension is more complex, more subtle. Space for him is not merely a question of geometrical projection.⁸⁶ Considered as a phenomenon it should also take into account the function of touch and in particular the role of colour, without which there is no visual perception of space.⁸⁷ Colour has a pre-eminent and immediate quality so that

Les relations spatiales - position, grandeur, forme et mouvement - ne sont que des données médiatees de cette sensation fondamentale. 88

Colour affects the visual pyramid with the co-operation of external light, on which vision depends: "non videtur [color] nisi lumine cooperante visui ad effectum".⁸⁹

The visus or flux issuing from the eye in the form of a cone can detect height, width, depth and direction:⁹⁰

Visus quoque discernit situm corporum et cognoscit eum per situm principiorum suorum que iam diximus, et per ordines radiorum a visu cadentium super illa, videlicet: que fiunt in longitudine, secundum quantitate radiorum qui procedunt a capite visibilis pyramidis; et [que] fiunt in

In this way, the length of the visual rays determines the object's distance from the observer and their orientation in relation to the axis of the visual cone its height and width.⁹² Like Euclid, Ptolemy relates the size of objects to the angle subtended at the apex of the visual cone: the larger the angle, the larger the apparent size of the object. With a given object, the angle and therefore the apparent size will vary both with distance and obliqueness.⁹³ Ptolemy, unlike Euclid, acknowledges that the judgement of size does not stop at the appearance of the object. The visual angle, distance and orientation are factors on which an estimate of real size can be based.⁹⁴ Ptolemy's theory also takes account of movement, when rapid changes occur in the length and direction of the visual rays.⁹⁵

Ptolemy considers the form or shape (figura) of objects to be separate from their corporeity. Shape is communicated through the visual pyramid which is impressed at its base by the object of perception, particularly by its outer limits and surface:

Figuras autem cognoscit visus per figuras basium
super quas cadunt visibiles radii. Lineas quoque
que figuras continent, cognoscit per notitiam
linearum continentium bases, ut rectas ut curvas
que ambe sunt principales de differentiis figurarum.
Cognoscit vero superficiem totum continentem,
planam videlicet et sphericam, per superficiem
totius basis.

The visual cone registers a concave shape when the length of a ray incident centrally on the surface is longer than those which fall obliquely; the reverse relationship between incident and contingent rays signals convexity. But the accurate

perception of forms, as well as of size and depth, can only take place within a certain range of distances.⁹⁷

(v) Galen: c.129 - c.199 A.D.

The main work in which Galen sets out his theory of vision, De placitiis Hippocratis et Platonis, was not translated from the Greek until the Renaissance.⁹⁸ However, Book 10 of his De usu partium on the eye and vision was translated from the Greek towards the end of the thirteenth century by Peter of Abano and again by Niccolò da Reggio in 1317.⁹⁹ Galen's theory formed the basis of the opinions about direct vision expressed by Tideus, the late-antique author of De speculis¹⁰⁰ which was translated into Latin by Gerard of Cremona in the twelfth century.¹⁰¹ Galen's views were also transmitted through the ninth century work of the Arabic ophthalmological scholar, Hunain Ibn Ishaq.¹⁰²

In De speculis, Tideus takes issue with the idea that vision is a straightforward reflex action, that

... apprehensio visus in aere sparso est absque cogitatione et sine ratiocinatione. 103

Nor, following Galen,¹⁰⁴ does he accept that vision is like a man using a stick at night to find his way.¹⁰⁵ The stick, like the eye ray, is a channel passing information between object and man, information which must be interpreted with the help of thought and reason. But the analogy suggests that objects take no active part in the process of perception. In fact objects, according to Tideus, give off colours which, through the medium of luminous air, stimulate the eye.¹⁰⁶ Colour does not carry any information about the size, position, place, distance, shape or movement of the object.¹⁰⁷ These data can only be collected

by the eye ray or virtus:

... esset impossibile, ut videns apprehenderet
situm rerum in locis suis et spacia earum, si
virtus videntis non perveniret ad illud, quod
aspicitur.

108

The virtus proceeds from the eye but, in order to be percipient,
it must first fuse with luminous air in the region of the eye:

... lumen lucidum egrediens ex oculo, cum
permiscetur aeri sparso, alterat ipsum
velocissime ad essentiam et substantiam suam ...

109

This process is possible because the virtus and lumen lucidum
are of the same nature. It is through the instrument of air,
which it changes to its own nature, rather than by its own
independent volition, that the virtus reaches the object and is
sensible of it.¹¹⁰

C. THE ARABIC TRADITION¹¹¹

Greek science was in decay by the time that Arab scholars began to take an interest in it, in the second half of the eighth century.¹¹²

Hunain Ibn Ishaq was one of the "most celebrated of all translators of Greek scientific works into Arabic".¹¹³

The son of a Christian (Nestorian) druggist, he had studied languages at Basra and had command of Persian, Greek, Arabic and Syriac (his mother tongue) by the time he went to Baghdad about 826.¹¹⁴

There he was enlisted in the services of successive 'Abbasid caliphs, helping to search out and translate "the entire canon of Greek science".¹¹⁵

As superintendent of the Caliph's library, founded at Baghdad in 830 as a depository and centre of translation for the ruler's growing collection of Greek manuscripts, Hunain undertook long journeys through the Near East to find source material.¹¹⁶

The texts which were translated included both optical works and Aristotle's writings on natural science.¹¹⁷ Aristotle's empirical methods, coupled with the new availability of Greek optical works, enabled Arab scholars to make considerable advances in optical theory and experiment.¹¹⁸

(i) Hunain Ibn Ishaq: 809-877 A.D.

Hunain incorporated Galen's theory of vision into the third book of his Ten Treatises on the Eye, following both Galen's De usu partium and the seventh book of his De placitiis. Hunain's work was translated into Latin as early as the eleventh century, perhaps by Constantinus Africanus (fl. 1065-1085), and probably a little later by one Demetrius, about whom little is known.¹¹⁹

The Ten Treatises of Hunain, known in the Latin West as the De oculis of Joannitius, "directly or indirectly ... influenced almost every member of the Western optical and ophthalmological tradition before the seventeenth century".¹²⁰

In his third Treatise, having discussed how the visual spirit, which possesses light, passes through the brain and optic nerve to the eye, Hunain goes on to refute both an intromission theory of vision and the notion that the visual spirit goes directly to the object of vision, encircling it.¹²¹ What happens, argues Hunain, is that the visual spirit, on meeting the air, transforms it to its own nature. The air thus becomes an organ of vision which extends itself until it reaches the visible object.¹²²

A precondition of sight is that the air should have undergone another transformation, through the action of sunlight. When the air is luminous, it can receive colour, as when the clothes of a man lying under a tree take on the colour of the leaves.¹²³ It is to colour that the eye first responds, and with colour comes such contingent information as shape, size and movement.

Igitur primum quod visus generaliter sentit sunt colores ... deinde sentit corpus in quo fundati sunt; sicut gustus prius sentit sapes postea corpus in quo sunt ... Visus autem ab oculis elongatur et extenditur per aeris mediocritatem qua usque ad illud corpus coloratum venerit ... Visus sentit formam corporis et quantitatem etiam et motum cum eis colore ...

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Hunain then attempts to explain how these apprehensions are returned to the eye by using the example of a man finding his way at night with a stick: when the stick encounters something resistant, he knows that it is a solid body. The eye ray behaves in a similar way:

... incidens supra lene solidum et lucidum corpus
retro ad pupillam qua exierat convertitur ...

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This explains why an image of the visual field is discernible on the surface of the pupil.

(ii) Alkindi: d.866 A.D.¹²⁶

Alkindi was one of the scholars responsible for the transmission of Greek optical learning to Islam.¹²⁷ He developed and enriched the Greek legacy, notably in two works known in their Latin versions as De radiis stellarum¹²⁸ and De aspectibus.¹²⁹ The latter translation has been accredited to Gerard of Cremona;¹³⁰ the work "influenced the course of optics for centuries to come".¹³¹

Nascent in the De radiis of Alkindi¹³² is a theory which, in the hands of Robert Grosseteste and Roger Bacon, was to become the basis of their doctrine of the multiplication of species.¹³³ In Alkindi's treatise it is affirmed that

... res huius mundi, sive sit substantia sive sit accidens, radios facit suo modo ad instar siderum ... omne quod habet actualem existentiam in mundo elementorum radios emittit in omnem partem, qui totum mundum replent suo modo.

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This power emanating from all things is not confined to light; it includes heat and sound, as well as colour;¹³⁵ but it is, by virtue of its radial diffusion, like light, and therefore adaptable to the laws of geometrical optics.¹³⁶

De radiis advances a theory for the three-dimensional propagation of radial influence, while Alkindi's critique of Euclid's De visu, as it emerges in De aspectibus, takes as its starting point the inadequacy of a purely geometrical theory

in accounting for depth in visible objects. When a visual ray, issuing from the eye, receives an impression

Imprimens ... corpus est corpus tres habens dimensiones, longitudinem et latitudinem et profunditatem.

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Yet the visual ray issuing from the eye is, according to Euclid, a one-dimensional line, having length only. What is worse, such lines reach the object at a point which by its very nature has neither length nor width nor depth:

... linea ... sit ... magnitudo unam habens dimensionem, videlicet longitudinem sine latitudine, cuius extremitates sunt duo puncta, in quibus finitur ...

Punctum autem non sentitur, quoniam longitudinem non habet neque latitudinem neque profunditatem.

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A further objection to Euclidean theory is that there are gaps between the rays within the visual cone. If this were so, and only the terminal points of the discrete rays were percipient, then the visual world would be only partially seen, points of visibility alternating with patches of nothingness. Alkindi describes the effect of reading a book under such conditions:

... si radii plures, inter quos sunt intervalla, egrediuntur ab aspiciente, aspiciens in libro videt plures litteras, inter quas sunt intervalla in pluribus locis, neque videt illud, quod est in intervallis, quae sunt inter eas, eo quod radius supra ea non cadat.

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Since reading is in fact not like this, Euclid's theory of separate linear rays is not a sufficient explanation of the experience of seeing.¹⁴⁰

Alkindi does not abandon Euclid's theory. He merely argues against an interpretation of linear rays as descriptive of the physical processes of vision. They remain valid as

mathematical symbols.¹⁴¹ However, the visus or visual cone proper must be three-dimensional in order to accommodate the nature of the physical world. It is not made up of discrete rays at all; it is a single three-dimensional beam, capable of receiving impressions of solid forms: "Impressio ... cum eo, in quo est impressio, simul est radius".¹⁴² Alkindi thus takes account of visual experience, using it to modify and enrich perceptual theory.

(iii) Avicenna (Ibn Sina): 980-1037 A.D.

Medieval scholars in the Latin West were acquainted with two works of Avicenna that discussed vision at length. These were the influential Liber canonis or Book of Medicine and the De anima or Liber sextus naturalium, the sixth book of his Sufficiencia or Book of Healing, which circulated independently of its parent work.¹⁴³ The first of these was translated by Gerard of Cremona,¹⁴⁴ the second by Avendauth (fl. 1135-1153) and Dominicus Gundissalinus (fl. c. 1125-c. 1151) at Toledo in the second half of the twelfth century.¹⁴⁵

The optical portion of the Liber canonis is chiefly concerned with ophthalmology, to which is prefaced an account of vision that derives from Galen.¹⁴⁶ But in De anima Avicenna devoted himself to a spirited attack on the extramission theory espoused in both the Galenic and Euclidean traditions. The effect of this was far reaching.¹⁴⁷ It was not merely an attempt, like Alkindi's, to save the appearances by adapting Euclidean theory to physical facts; it was a complete overthrow, by detailed logical analysis, of the idea that there could exist a corporeal

emission of light from the eye.¹⁴⁸ After Avicenna, it became increasingly difficult to maintain that the space between observer and object was bridged in this way.

The third part of Avicenna's De anima is devoted entirely to vision and the associated phenomena of light, colour and the visual medium.¹⁴⁹ In the fifth section, he begins by stating three alternative theories of perception. The first or Euclidean doctrine maintains that linear rays leave the eye in the form of a cone with its apex in the eye and its base on the object; the second or Galenic doctrine teaches that rays issuing from the eye unite with the illuminated air to become a percipient instrument of vision; and the third or Aristotelian theory represents vision as similar to the other senses, involving the passage of an active influence from the object to a recipient sense-organ.¹⁵⁰ Avicenna examines each theory in turn and finds both the Euclidean and Galenic positions untenable. For example, he points out that if, as in the first theory, the pyramid of vision is based on the object, then the eye ought to be aware of the real size of the object at any distance, whereas in fact it only knows apparent size.¹⁵¹ As for the second theory, Avicenna takes the notion of sentient air to its logical and ludicrous conclusion: if a man of feeble sight were to sit next to a man of better sight his vision would be improved, since the percipient air produced by his own eyes would be conjoined to that of his neighbour.¹⁵²

In both the Euclidean and Galenic theories of vision, Avicenna objects to the notion that the ray or rays emitted by the eye are corporeal, or that light rays of any sort have this

status. It is absurd that something issuing from the eye should be able to fill half the world.¹⁵³ Statements about the behaviour of rays are not to be taken literally:

Hoc enim quod dicimus radium descendere aut exire
aut intrare, nomina sunt transsumptiva, quia
nihil de hoc habet ...

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In adopting this view, Avicenna is at odds with Alkindi, who had maintained that light has an active corporeal character.¹⁵⁵

But Avicenna has this in common with Alkindi: his criticism of Euclidean and Galenic optics is based on a physical rather than an abstract interpretation of vision. The theory that Avicenna does support is Aristotelian, terse and straightforward in its explanation. Sight is no different from the other senses, which are also affected by external stimuli.¹⁵⁶ It involves a movement from potential to act, an alteration in which the sensitive faculty undergoes a change under the influence of the sense-object.¹⁵⁷ Light - which is possessed by fire and the sun - reveals and activates colour:¹⁵⁸

Nos enim, quamvis dicimus quod lux non est
manifestatio coloris, non negamus tamen lucem
esse causam manifestandi colorem et causam
resultandi in alio.

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Besides light and a coloured object the act of vision also requires a transparent medium and a facing observer with healthy eyesight. These are sufficient conditions:

... cum aer fuerit translucens in effectu et
colores fuerint colores in effectu [...],
non sit necesse esse aliud ad habendum visum.

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When light strikes the object there is projected through the transparent medium towards the observer a coloured form like the object:

... visus recipit a viso formam similem ei quae
in illo est, sed ...

Avicenna is able to demonstrate that the visual image has an existence separate from the corporeal form for when an observer looks at the sun and then turns away, an after-image remains.¹⁶² The visual image passes through the pupil - where it is apparently but not actually reflected - to the lens and internal senses.¹⁶³ Colour and shape are primarily sensibles; details such as size, position and distance are mediated through colour.¹⁶⁴ In spite of this reversal of the direction in which light was considered to pass between eye and object, Avicenna did not abandon a geometrical account of the behaviour of light rays, or the concept of a visual cone. On the contrary, he maintained that the Aristotelian intromission theory was the only one which could be reconciled with the mathematics of Euclidean optics.¹⁶⁵ In fact, Euclid's geometrical symbols are applicable to light rays in whichever direction they are thought to travel.

(iv) Alhazen (Ibn al-Haytham): c.965-c.1039.

Undoubtedly the most influential of all medieval works on optics was the De aspectibus or Perspectiva of Alhazen, an Arab physicist who, after researches into classical theories of vision, put the subject on a new footing.¹⁶⁶ The earliest noted citation of De aspectibus dates from the early thirteenth century so that the translation into Latin was evidently made some years previously.¹⁶⁷ The identity of the translator is unknown, but he may have been Gerard of Cremona.¹⁶⁸ Nineteen surviving manuscripts of Alhazen's work have been recorded. An Italian translation was made from the Latin text in the first half of the fourteenth century.¹⁶⁹

Although Avicenna had attacked the Galenic and Euclidean notion that visual rays issue from the eye, his alternative was little more than a reaffirmation of Aristotle's views. To Alhazen must go the credit of creating the theory that finally supplanted the extramission systems of the Greeks.¹⁷⁰ In addition, he advanced the application of Euclidean geometry to vision and developed to a sophisticated level the study of the psychology of perception. For these reasons it is appropriate to consider his work in some detail.¹⁷¹

Alhazen drew attention to the fact that very bright light is painful to the eye¹⁷² and that it leaves an after-image:

... quando inspiciens inspexerit corpus mundum album, super quod oriebatur lux diei: et fuerit illa lux fortis, quamvis non sit lux solis: et moretur in aspectu diu: deinde convertat visum suum ad locum obscurum: inveniet formam lucis illius in loco illo, et inveniet cum hoc figuram eius: deinde si clauserit visum: inveniet in ipso formam illius lucis ...

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This evidence shows that light has some effect in the eye and that illuminated colours have an effect in the eye.¹⁷⁴ It is therefore proposed that in vision the eye receives light from external sources.

This conclusion does not necessarily deny the extramission of rays from the eye, but such a possibility is excluded in the development of Alhazen's theory of light. He states that

... ex quolibet puncto cuiuslibet corporis colorati et illuminati cum quolibet lumine, exeunt lux et color super quamlibet lineam rectam, quae poterit extendi ab illo puncto ...

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Light and colour issue from a body in straight lines and in all directions. Now it is the property of light and colour to pass together through any transparent body.¹⁷⁶ The eye itself is constituted of transparent layers or tunics (Fig.1). Therefore

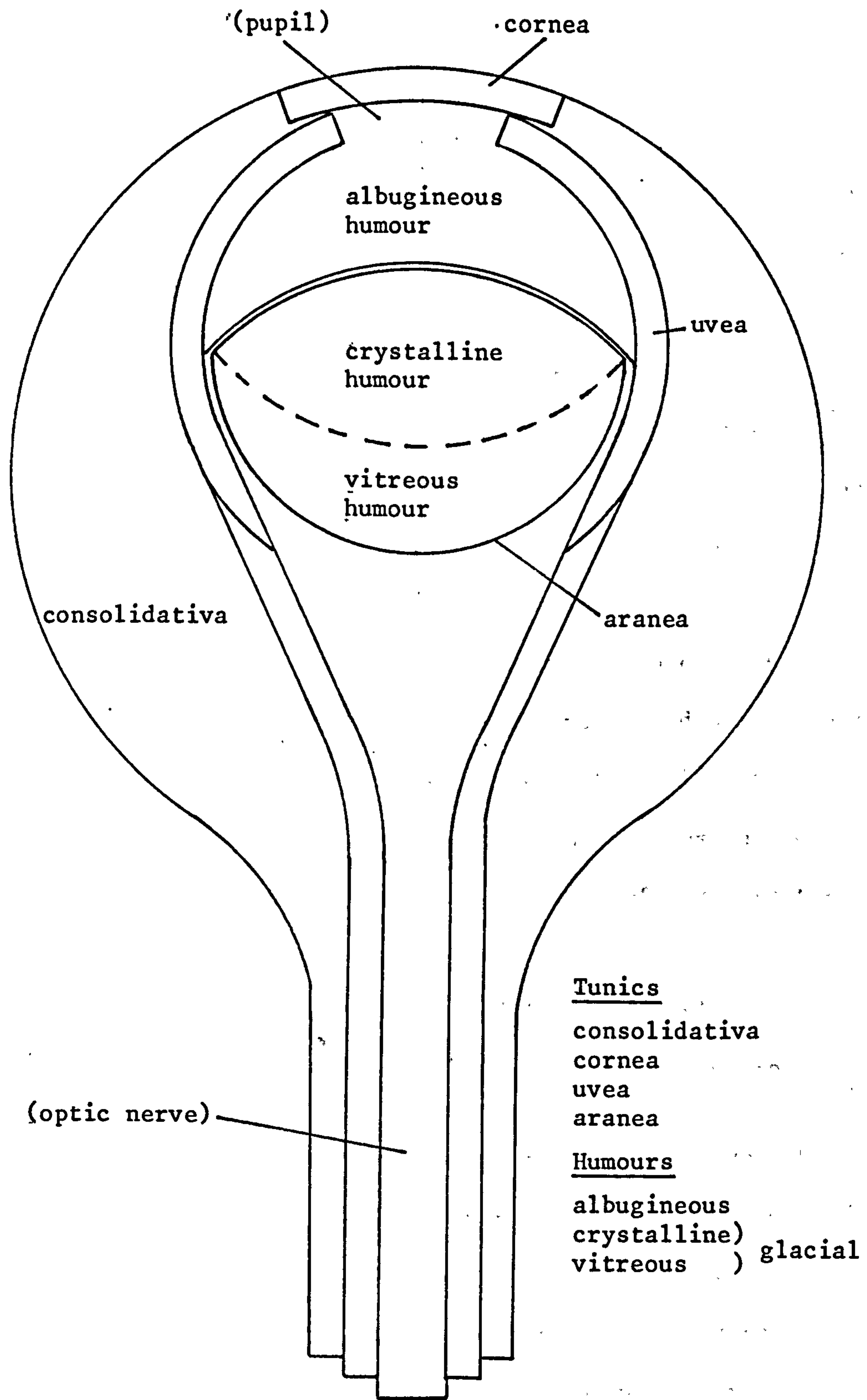


Figure 1: Anatomy of the eye according to Alhazen.

... visus sentit lumen et colores, qui sunt in superficie rei visae, et quod pertranseunt per diaphanitatem tunicarum visus.

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In order to receive forms of light and colour the eye has merely to be placed opposite an irradiating object.¹⁷⁸

In the course of a detailed discussion, Alhazen refutes the argument that visual rays issue from the eye, and criticises the Galenic theory of vision. Extramission theories, he says, are an attempt to explain in tactile terms how objects are apprehended when a space separates them from the observer.¹⁷⁹

Whatever is supposed to issue from the eye must return to it an impression of the visible object. But since the transmission of forms to the eye by light and colour has already been adequately explained, "Exitus ergo radiorum est superfluum et otiosus".¹⁸⁰ It cannot explain perception. In denying their physical existence, however, Alhazen does not jettison the notion of rays as geometrical symbols. They are useful to mathematicians in demonstrating the extension of forms to the eye, but

Opinio ergo opinantium, quod lineae radiales sint imaginariae, est opinio vera: et opinio opinantium, quod aliquid exit a visu, est opinio falsa.

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In stating that each point on the surface of an object sends out light rays in all directions, Alhazen had introduced a sizeable problem, although one which he recognised. For from a single point on the surface of the object many rays will come to the eye. If the eye is receiving such rays from every visible point, then there is in the eye a process of superimposition:

Cum ergo fuerint partes unius rei visae diversi coloris: veniet ad totam superficiem visus ex unoquoque illarum forma coloris et lucis, et sic permiscebuntur colores illarum partium in superficie visus.

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Now if the eye cannot discriminate between the different points that emit rays, then it cannot apprehend the object other than as a hopeless confusion of light and colour. In practice, however, objects are seen distinctly.¹⁸³ How can this be?

In order to explain clear vision, Alhazen must establish that from each point in the visual field only one ray reaches the percipient part of the eye, which is not the surface itself, but the lens or crystalline humour.¹⁸⁴ He first draws attention to the behaviour of light rays when they encounter a transparent medium denser than air. Only a ray perpendicular to the surface of the medium continues in a straight line; those which strike it obliquely are refracted.¹⁸⁵ This is also true of rays which, striking the surface of the eye, pass through the transparent outer layers or tunics to the crystalline lens (Fig.2):

... nihil pertransibit per diaphanitatem tunicarum visus secundum rectitudinem, nisi illud, quod erit super lineam rectam elevatam super superficiem visus secundum angulos rectos, et illud, quod fuerit super aliam, refringetur, et non pertransibit recte ...

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Now from every sheaf of rays issuing from points on the surface of the visible object only one will strike the lens at right angles; all the other rays are oblique and have a nugatory effect,¹⁸⁷ for "operatio lucis venientis super perpendiculares, est fortior operatione lucis venientis super lineas inclinatas".¹⁸⁸ Thus at any point on the surface of the eye only one ray will enter at the perpendicular and pass unrefracted through the

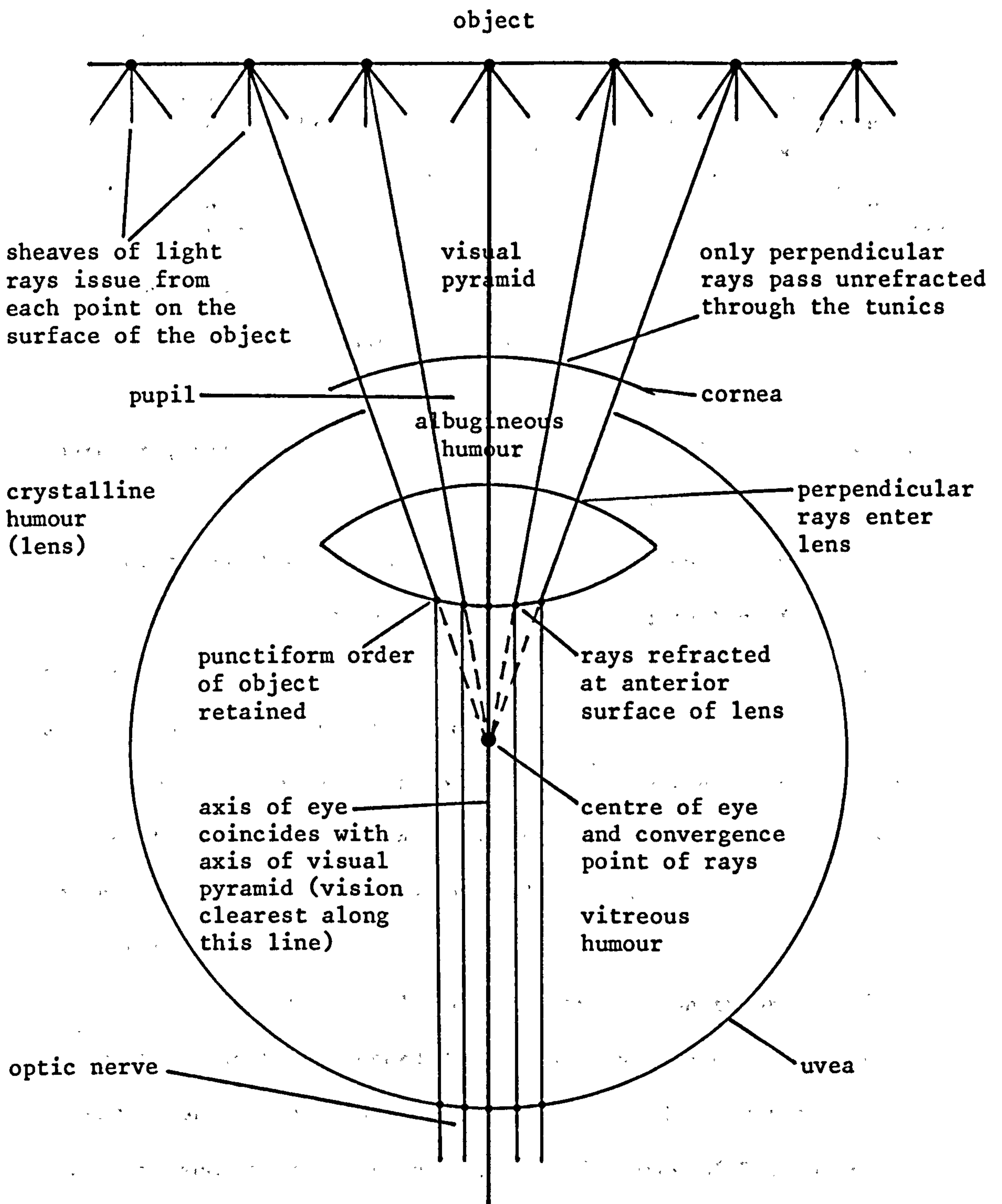


Figure 2: The geometry of sight according to Alhazen.

transparent tunics to the crystalline lens.¹⁸⁹

The perpendicular lines, grouped together, form an imaginary pyramid:

...inter illud punctum, et illam superficiem est pyramis imaginabilis, cuius vertex est illud punctum, et cuius basis est illa superficies: et illa pyramis continet omnes lineas rectas intellectas, quae sunt inter illud punctum et omnia puncta illius superficiei.

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Since the rays are rectilinear and converge at a point, they preserve the same arrangement as the points from which they originated in the visual field. Through the visual pyramid, therefore, the form of light and colour of the visible object is conveyed to the eye. The point of convergence is the centre of the eye, beyond the crystalline humour, on which the two-dimensional image is arranged like the arrangement of the coloured parts on the surface of the visible object.¹⁹¹ The axis of the pyramid is co-incident with the straight line connecting the central parts of the eye;¹⁹² vision is most clear through the axis since it alone of all the straight lines passing through the crystalline lens proceeds to the centre of the eye without refraction.¹⁹³

Alhazen, having established an intromission theory of vision, has at the same time succeeded in preserving a geometrical representation of sight that derives from Euclid yet without including some of the more problematic features of Euclidean theory. For example, there are no gaps between the rays of the visual pyramid since they issue from every point in the visual field. Alhazen's subsequent discussion of direct vision is lengthy and detailed and it will not be possible to do it justice here. But it will be appropriate to consider Alhazen's accounts

of the conditions which make clear vision possible, the different types of visual stimuli and how they are apprehended, and the perception of distance and of depth in objects.¹⁹⁴

There are six prerequisites if vision is to be fully effected.¹⁹⁵ The first is space between the eye and the visible object. For, if the object is adjacent to the eye, light will be excluded; and since only a small portion of the object will be facing the pupil, the entire form will not be seen.¹⁹⁶ The second requirement is that there should be no intervening body between the eye and the visible object, which must lie in front; if there is, it will cut off the imaginary straight lines which must run direct from object to eye if it is to be seen in its entirety.¹⁹⁷ Thirdly, the object must be luminous or illuminated, for light is necessary to its extension in air and to the activating of colour, on which awareness of the form depends.¹⁹⁸ Fourthly, the object must be of a certain size; if it is very small, then when it is extended through the visual pyramid to the eye its impact on the crystalline lens will be negligible.¹⁹⁹ Fifthly, the medium between the eye and the visible object must be transparent and continuous to allow for the transmission of multiple forms to the eye.²⁰⁰ Finally, the object itself must have density because what is dense has colour, which in turn produces the forms that come to the eye.²⁰¹

Alhazen identifies twenty-two properties (intentiones) found in visible objects: light and colour, through which are also conveyed distance, place, corporeity, shape, size, discreteness, separation, number, movement, rest, roughness, smoothness, transparency, density, shadow, darkness, beauty,

ugliness, similarity and difference.²⁰² These properties individually represent classes of stimulus: for example, straightness, curvature, concavity and convexity would come under 'shape'.²⁰³ The reception by the eye of these properties is only the first stage towards the completion of the act of vision. There follows a rational process of discrimination. For instance, comparative judgements are made between different strengths of colour and light, between different shapes and positions.²⁰⁴

Et etiam scriptura non comprehenditur, nisi ex distinctione formarum literarum, et compositione illarum, et comparatione illarum ex sibi similibus, quae sunt notae scriptori ante. Et similiter multae res visibiles, quando considerabitur qualitas comprehensionis illarum, non comprehenduntur solo sensu, sed ratione et distinctione.

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The mental faculty which completes the act of vision is called by Alhazen the discriminative faculty or virtus distinctiva.²⁰⁶ It is the virtus distinctiva, interpreting the various properties, which is responsible for decoding the two-dimensional image of the crystalline lens into an accurate impression of space and depth in the visual world.²⁰⁷

The accurate perception of space depends on the presence between eye and object of an array of contiguous objects (corpora ordinata continuata) of known distance and size.²⁰⁸ The distance of the object can then be judged in relation to the array. Without it, distance cannot be accurately perceived. For example, the height of clouds is difficult to assess unless they are seen in relation to mountains.²⁰⁹ Alhazen describes an experiment in which two parallel walls are viewed, one behind the other, but in circumstances where the concomitant visual

array, in this case a ground plane, is not visible. In such conditions, the observer finds it impossible to judge the distance of the walls or the amount of space between them.

The experiment demonstrates that

... visus non comprehendat quantitatem remotionis rei visae, nisi quando remotio eius respexerit corpora ordinata continuata, et comprehenderit visus illa corpora interposita, et certificaverit mensuras eorum ...

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The accurate gauging of size also depends on the presence of corpora ordinata continuata, since the estimation of size is related to estimated distance.²¹¹ But neither distance, the spatial relations between forms, nor size can be directly judged if the object concerned is too distant, for then the contingent visual array itself becomes indistinct and ceases to function as a point of reference.²¹²

The process of assessing distance, since it involves comparisons, is a function of the virtus distinctiva.²¹³ When objects are especially far away or their distance cannot be determined in relation to the contingent array of bodies, then the virtus distinctiva makes an estimation of distance by referring to former sightings of the object in question; a similar process of reasoning can lead to an estimation of size, but errors may be made. The discrepancy between estimated and actual distance varies with circumstance, but in favourable conditions it is minimal.²¹⁴

Mensura ergo remotionis rei visae comprehensa a visu, cuius forma est concepta in anima, quando illa remotio respexerit corpora ordinata continuata, et simul fuerit mediocris, et comprehenderit visus illa corpora ordinata respicientia eius remotionem, et etiam iam virtus distinctiva cognoverit ipsam, et certificaverit mensuras corporum ordinatorum, certificata est.

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If any of these conditions is absent, then the distance will not be fully ascertained. These requirements hold good for the accurate perception of the space between objects and of volume.²¹⁶

Alhazen defines solidity (corporeitas) as

... extensio secundum trinam dimensionem,
comprehenditur a visu in quibusdam corporibus,
et in quibusdam non. 217

However, it is implicit in the act of perception that what is seen must have some solidity: although when a form presents itself to view only a plane surface may be visible, the third dimension is necessarily present.²¹⁸ An object [e.g. a cube] can be so

placed that only one flat surface is seen, in which case its solidity, although present, is not directly apprehended.²¹⁹ But if it is positioned obliquely, so that two surfaces are visible, then its solidity and depth become visually evident.²²⁰

Obliqueness of one surface in relation to another signals depth in the object and

... generaliter dico, quod omne corpus, in quo
potest visus comprehendere duas superficies
secantes se, comprehendetur in sua corporeitate
a visu. 221

The obliqueness on which generally depends the perception of depth in objects is only effective at moderate distances; in objects at a great distance, obliqueness cannot be detected. Solidity in such cases is apprehended through prior acquaintance with the object.²²²

(v) Averroes (Ibn Rushd): 1126-1198

Among the works of Aristotle on which Averroes made commentaries his Epitome of Parva naturalia (1170) enabled him to expound the attitudes to vision expressed by Aristotle in De sensu.²²³

The Epitome, sometimes wrongly accredited in the West to al-Farabi, was probably translated by Michael Scot before 1240, when it was used by Albertus Magnus.²²⁴

In his Epitome, Averroes states that sight is one of the senses that requires a medium in order to be activated and is unique in also requiring light, a substance external to the sense itself, which illuminates the object of perception. "Et proprium visui ... est hoc, quod cum medio indiget luce: non enim videt in obscuro".²²⁵ The sense-stimuli peculiar to sight are colours, which appear on the surfaces of objects.²²⁶ Colour is first transmitted to the air and then to the eye: "aer primo recipit colorem, deinde conducit eum ad visum, secundum quod est diaphanum lucidum".²²⁷ Averroes summarises and discusses the views of earlier writers on perception, endorsing the Euclidean idea that light travels in the form of straight lines and cones. But he maintains, like Avicenna, that colour is conveyed to the eye not corporeally but spiritually. As it passes through the medium, colour is transformed into a spiritual or non-material impression. Following Aristotle, Averroes likens the medium to a two sided mirror which receives three-dimensional impressions and changes them to two-dimensional images before transmitting them. He describes a man looking into the mirror with its opposite side facing some water. A second man stands near the water:

Forma igitur aspicientis est sensata et speculum
est aer medius et aqua est oculus. Et secunda
facies speculi est virtus sensibilis et homo
comprehendens eam est virtus ymaginativa.

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Averroes' long commentary on Aristotle's De anima, the translation of which has been attributed to Michael Scot,

enabled him to discuss in more detail the necessity of an intervening medium, transferring colour from object to eye. In the following quotation, Averroes takes advantage of Aristotle's views on the similarity of vision and touch in order to expound the subject matter.

Et impossibile est ut visus patiatur et moveatur a colore, si corpus coloratum fuerit extra visum, nisi ita quod illud coloratum prius moveat medium secundum tactum, et medium moveat visum. Et si vacuum esset inter visum et visibile, tunc non posset movere visum. Omnis enim habitus existens in corpore non agit nisi secundum tactum. Si igitur ultimum motum non tangitur a motore, necesse est ut inter ea sit medium quod reddat passionem, et illud medium erit tactum et tangens; primum autem erit tangens non tactum, et motum postremum tactum non tangens. Unde necesse est ut visus patiatur a medio, non a vacuo ...

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D. THE EUROPEAN TRADITION²³⁰

Greco-Arabic science reached its zenith at the end of the tenth century and had itself begun to decline by the mid-1200's. By that time many Arabic and Greek scientific texts were being translated into Latin at cosmopolitan centres of learning in Europe. From northern Italy came a number of anonymous manuscripts, often translated from the Greek;²³¹ in southern Italy the multilingual society of Sicily ruled by the Norman Hauteville kings, particularly the scientifically minded Frederick II (1215-1250), provided a fertile ground for the propagation of texts;²³² while the medical school at Salerno had given an early impetus to scientific advance;²³³ and in Spain at Toledo were produced an astonishing number of Latin texts from the Arabic, many of them the work of Gerard of Cremona.²³⁴

In the course of what has become known as the renaissance of the twelfth century, many of the optical texts which have been under discussion first became available to Latin scholars.²³⁵ Men like Michael Scot, Adelard of Bath, Roger of Hereford, Daniel of Morley, Alfred of Sareshel and Roger of Chester had travelled south from their homelands in search of the new learning of the Arabs.²³⁶ From the regions of southern Europe, where Islamic, Christian and Byzantine cultures merged, the new optical texts and the natural science of Aristotle were transmitted northwards as part of a general scientific awakening.²³⁷ Crombie comments:

In the 12th century we can see the time when ... 'men of philosophic temperament' began to turn away from the vision, given them by St. Augustine, of the natural world as a symbol of another, spiritual world, and to see it as a world of

'natural causes' open to investigation by observation and hypothesis. What made this new scientific vision possible was the new logical and mathematical equipment and the new systems of scientific explanations provided by the translators of the Greek and Arabic scientific writings.

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The influx of scientific learning into the northern schools coincided with the formation of a new institution: the university.²³⁹ At the University of Paris, which seems to have begun its corporate life about 1200, the untrammelled study of the new Aristotle led to the first prohibition of the libri naturales by papal ordinance in 1210.²⁴⁰ In England, the monastic school of Worcester and the cathedral school at Hereford appear to have been among the first places to have received the new learning.²⁴¹ The new translations of Aristotle were already being studied at Oxford in the first decade of the thirteenth century and the University of Oxford, which had achieved institutional status before 1214, soon became supreme in the study of mathematics, optics and logic applied to the exact sciences. This may in part be explained by its relative independence of papal control.²⁴²

(i) Robert Grosseteste: c.1168-1253

It is against the background of the scientific revival that the optical writings of Robert Grosseteste should be placed. He studied at Hereford, later at Paris, and was elected first chancellor of the University of Oxford in about 1214. From 1229 to 1235 he lectured to the Franciscan school at Oxford, after which until his death he was bishop of Lincoln.²⁴³

Grosseteste's commentaries on Aristotle and his original

scientific works helped to establish the pre-eminence of Oxford in the natural sciences:²⁴⁴ He regarded optics as "the fundamental physical science"²⁴⁵ and wrote a number of works which considered the nature and properties of light. These are De lineis, angulis et figuris, De iride, De colore and De natura locorum, which were all probably written towards the end of his time at Oxford, c.1230-1235.²⁴⁶ Two other items, De luce (1215-1220) and Commentary on the Posterior Analytics (1220-1228), contain further material of interest.²⁴⁷

There is no evidence in his optical writings to suggest that Grosseteste knew or made use of the De aspectibus of Alhazen or the Optica of Ptolemy, but he was acquainted with optical writings by Euclid, Aristotle, Avicenna and perhaps Alkindi and Averroes.²⁴⁸ Grosseteste's theory therefore, although reflecting some Aristotelian tendencies, represents a transitional stage between classical theories of vision and the doctrines developed by Alhazen.²⁴⁹ It is no small part of Grosseteste's achievement to have integrated and established within medieval scholasticism the study of perspectiva as a legitimate pursuit.²⁵⁰

Grosseteste's ignorance of Alhazen is manifest in his theory of visual rays. In De iride it is asserted that there exists a physical emanation of rays from the eye:

... substantia assimilata naturae solis lucens et
radians, cuius radiatio coniuncta radiationi
corporis lucentis exterius totaliter visum complet. 251

Grosseteste is aware, however, that two opinions are held about sight. Either it occurs by the reception of visual rays by the eye, or through their emission from the eye. But he concludes, unaware that his view is outdated, that "Perspectiva igitur

veridica est in positione radiorum egredientium"²⁵² and goes on to describe direct vision, reflection and refraction in such terms.

Fortunately, the geometry of vision is not affected by the direction in which the rays are thought to travel, and Grosse-teste fully adopts Euclidean geometry to explain perception. The study of geometry is important because "Omnes enim causae effectuum naturalium habent dari per lineas, angulos et figuras".²⁵³ Optics itself is

... scientia, quae erigitur super figuras visuales, et haec subalternat sibi scientiam, quae erigitur super figuras, quas continent lineae et superficies radiosae, sive proiecta sint illa radiosa ex sole, sive ex stellis, sive ex aliquo corpore radiante.

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Objects emit rays not just to the observer but spherically, in all directions:

Omne enim agens multiplicat suam virtutem sphaerice, quoniam undique et in omnes diametros: sursum deorsum, ante retro, dextrorsum sinistrorsum.

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The action of an object on the eye takes the form of a pyramid:

... virtutes venientes a singulis partibus agentis concurrunt in cono pyramidis et congregantur ...

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An infinite number of pyramids can be based on the surface of the object, but the apex of the shortest one is the most effective.²⁵⁷

Associated with the notion that light radiates spherically in all directions is the doctrine of the multiplication of species, encountered in embryonic form in the writings of Alkindi. Just as hot objects generate heat, so a visible object generates a species through which its form is transmitted along straight lines to both sentient and inanimate recipients:

Agens naturale multiplicat virtutem suam a se usque in patiens, sive agat in sensum, sive in materiam. Quae virtus aliquando vocatur species, aliquando similitudo, et idem est, quocunque modo vocetur; et idem imittet in sensum et idem in materiam, sive contrarium, ut calidum idem immittit in tactum et in frigidum. Non enim agit per deliberationem et electionem; et ideo uno modo agit, quicquid occurrat, sive sit sensus, sive sit aliud, sive animatum, sive inanimatum. Sed propter diversitatem patientis diversificantur effectus. In sensu enim ista virtus recepta facit operationem spiritualem quodammodo et nobiliorem; in contrario, sive in materia, facit operationem materialem ...

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Once the eye has received a species, then reason discerns its full nature. It is this activity of natural bodies that optics studies.

The three-dimensional propagation of light is an idea to which Grosseteste returns in De luce, where he states that light is the very origin and basis of corporeity:

Formam primam corporalem, quam quidam corporeitatem vocant, lucem esse arbitror. Lux enim per se in omnem partem se ipsam diffundit, ita ut a puncto lucis sphaera lucis quamvis magna subito generetur, nisi obsistat umbrosum. Corporeitas vero est, quam de necessitate consequitur extensio materiae secundum tres dimensiones, cum tamen utraque, corporeitas scilicet et materia, sit substantia in se ipsa simplex, omni carens dimensione...Quicquid igitur hoc opus facit, aut est ipsa lux, aut est hoc opus faciens in quantum participans ipsam lucem, quae hoc facit per se. Corporeitas ergo aut est ipsa lux, aut est dictum opus faciens et in materiam dimensiones inducens, in quantum participat ipsam lucem et agit per virtutem ipsius lucis. At vero formam primam in materiam dimensiones inducere per virtutem formae consequentis ipsam est impossibile. Non est ergo lux forma consequens ipsam corporeitatem, sed est ipsa corporeitas.

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Grosseteste makes a distinction between primal light or lux, the first corporeal form, and secondary light or lumen.

On a cosmic scale lux, as was its nature, multiplied itself spherically "in tantam molem, quanta est mundi machina".²⁶⁰ Having completely realised its potential for spherical expansion, the outermost parts of the universe (the firmament) are "plus extendi et magis rarefieri, quam partes intimas".²⁶¹ The firmament can expand no further, but it transmits its own reflected or secondary light (lumen) concentrically, back towards the centre of the universe. The lumen of the firmament also realises its maximum potential:

Et ita fiebat in ipsis partibus extimis dictae
molis sphaera secunda completa nullius
impressionis ultra receptibilis.

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In its turn, the second sphere gives out its lumen, thus generating a third sphere. This process of propagation continues, the spheres becoming progressively smaller and less rarefied, until the universe is complete, with the earth and its four elemental spheres at the centre.²⁶³ Accordingly "ist das physikalische Grundwesen alles Naturwirklichen das Licht".²⁶⁴

It is a short step from the neoplatonic cosmogony which Grosseteste describes in De luce to the account of creation in Genesis, where light is a product of God's work on the first day, pre-existing the sun and moon which were not created until the fourth day.²⁶⁵ Commentaries on the Hexameron, one of which Grosseteste wrote, traditionally stressed the importance of light in the Christian scheme of creation.²⁶⁶ By seeing the universe and the corporeity of its forms as a result of the agency of light, Grosseteste was able to give the scientific discipline of optics a theological rationale.²⁶⁷ If God gave precedence to the creation of light and light was, as the informing principle

of the universe, corporeity itself, then optics as a study of light was the key to gaining a knowledge of God himself. The external behaviour of light in the physical world therefore has a direct bearing on the internal illumination of the soul; and the analogies that can be drawn between the nature of the outer eye and the inner eye are a means of elucidating scriptural truth.²⁶⁸

(ii) Roger Bacon: c.1219-c.1292

Roger Bacon had access to, and used, all the major works on optics which had been written and translated into Latin by the mid-thirteenth century. His personal achievement in the field was to effect a synthesis of the different traditions, thus giving perspectiva the appearance of a unified body of thought.²⁶⁹ Bacon's scientific writings were composed in Paris in the 1260's in conditions of secrecy, since Bacon was at the time under virtual house arrest.²⁷⁰ Such circumstances meant that these works, which were despatched to Bacon's patron, Pope Clement IV, had little immediate impact, although the number of surviving manuscripts witnesses to the extent of their subsequent influence.²⁷¹ Bacon's two key treatises of present concern are the De multiplicatione specierum and Perspectiva, which forms the fifth part of the Opus maius.²⁷²

On the propagation of light from the object in straight lines, the visual pyramid, the conditions and properties of vision, the structure of the eye and the psychology of perception, Bacon stays close to Alhazen.²⁷³ But on the question of what exactly passes between object and eye to produce vision, and how the effect of the object is received, Bacon develops a theory

derived in the first place from Grosseteste, whom he much admired.²⁷⁴ By the term species, Bacon intended both Grosseteste's conception of the word²⁷⁵ and Alhazen's forms of light and colour, as well as other antecedent ideas about the projection of the images of objects to an observer²⁷⁶ and their subsequent interpretation by the mental faculties.²⁷⁷ The species is "primus effectus agentis"²⁷⁸ generated by the object into the adjacent medium:²⁷⁹

Omne nim efficiens agit per suam virtutem
quam facit in materiam subjectam, ut lux
solis facit suam virtutem in aere, quae est
lumen diffusum per totum mundum a luce solari.
Et haec virtus vocatur similitudo, et imago,
et species ...

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derived in the first place from Grosseteste, whom he much admired.²⁷⁴ Grosseteste had maintained that, just as hot objects generate heat, so a visible object generates a species through which its form is transmitted along straight lines to both sentient and inanimate recipients:²⁷⁵

Agens naturale multiplicat virtutem suam a se usque in patiens, sive agat in sensum, sive in materiam. Quae virtus aliquando vocatur species, aliquando similitudo, et idem est, quocunque modo vocetur; et idem immittet in sensum et idem in materiam, sive contrarium, ut calidum idem immittit in tactum et in frigidum. Non enim agit per deliberationem et electionem; et ideo uno modo agit, quicquid occurrat, sive sit sensus, sive sit aliud, sive animatum, sive inanimatum. Sed propter diversitatem patientis diversificantur effectus. In sensu enim ista virtus recepta facit operationem spiritualem quodammodo et nobiliorem; in contrario, sive in materia, facit operationem materialem, sicut sol per eandem virtutem in diversis passis diversos producit effectus. Constringit enim lutum et dissolvit glaciem.

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Once the eye has received a species, then reason discerns its full nature.²⁷⁷ It is this activity of natural bodies that optics studies.

By the term species, Bacon intends both Grosseteste's conception of the word and Alhazen's forms of light and colour, as well as other antecedent ideas about the projection of the images of objects to an observer.²⁷⁸ The species is "primus effectus agentis"²⁷⁹ generated by the object into the adjacent medium:

Omne enim efficiens agit per suam virtutem quam facit in materiam subjectam, ut lux solis facit suam virtutem in aere, quae est lumen diffusum per totum mundum a luce solari. Et haec virtus vocatur similitudo, et imago, et species ...

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Bacon draws an analogy with the effect of light passing through a coloured window. The colour is projected on to opaque bodies near the window and this colour is the species of the colour in the glass.²⁸¹ It is in fact only light and colour which produce the species affecting vision; they are not produced by such contingent factors as size, shape, number and so on (Alhazen's intentiones).²⁸² A species is different from that which produces it to the extent that it is a similar but incomplete version of its source.²⁸³

The impression of the species in the medium is made "per veram immutationem et eductionem de potentia activa materiae patientis".²⁸⁴ By a process of multiplication the form is transmitted:

... illa quae in prima parte aeris fit non separatur ab illa, cum forma non potest separari a materia in qua est, nisi sit anima, sed facit sibi simile in secundam partem, et sic ultra. Et ideo non est motus localis, sed est generatio multiplicata per diversas partes medii ...

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The rectilinear constructs of geometry between eye and object plot the route of the species which multiply from the object through the adjacent medium:

Omnis autem multiplicatio vel est secundum lineas, vel angulos, vel figuras. Dum vero species in medio raritatis unius incedit, ut in toto coelo, et in toto igne, et in toto aere, vel in toto aqua, semper tenet vias rectas ...

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The species arrive at the eye in a punctiform array that preserves the arrangement and order of the visible forms.²⁸⁷ Since species are produced by all that exists in the material world, the eye must also give them out. There is evidence for this in the fact that a man can see the reflection of his

own eye. Bacon maintains that species issuing from the eye are necessary to the completion of the act of vision.²⁸⁸ He thus integrates two seemingly opposed theories:

... operatio videndi est certa cognitio visibilis distantis, et ideo visus cognoscit visibile per suam virtutem multiplicatam ad ipsum. Praeterea species rerum mundi non sunt natae statim de se agere ad plenam actionem in visu propter eius nobilitatem. Unde oportet quod iuventur et excitentur per speciem oculi, quae incedat in loco pyramidis visualis, et alteret medium ac nobilitet, et reddat ipsum proportionale visui ... 289

Addressing himself to the corporeal nature of objects and their propagation in depth, Bacon observes that a species preserves the three dimensions of its source because the medium through which it passes is also three-dimensional:

... nec est corpus quod ibi generatur, sed forma corporalis non habens tamen dimensiones per se, sed fit sub dimensionibus aeris ... 290

Bacon is able to support his argument with references to antecedent writers, such as Alkindi, who said that visual rays do not only have length, but also width and height.²⁹¹ The nature of rays therefore reveals the extension in three dimensions of the species whose path they trace.

Sed sciendum quod hujusmodi lineae, super quas est multiplicatio, non sunt habentes solam longitudinem inter duo puncta extensam, sed earum quaelibet est habens latitudinem et profunditatem ... Jacobus Alkindi dicit, quod impressio similis est cum eo a quo fit; imprimens autem corpus est habens tres dimensiones, quarum radius habet corporalem proprietatem; et addit, quod radius non est secundum lineas rectas inter quas sunt intervalla, sed multiplicatio est continua, quare non carebit latitudine. Et tertio dicit, quod illud quod caret latitudine, profunditate, et longitudine, non sentitur visu. Radius igitur non videtur, quod falsum est. Et scimus quod radius non potest transire nisi per aliquam partem medii, sed quaelibet pars medii est habens trinam divisionem. 292

(iii) Witelo; c.1230-c.1275

Little is known of the life of Witelo.²⁹³ He was a Silesian by birth who studied at Paris and Padua before going to the papal court at Viterbo in about 1269. He arrived there shortly after the reception of Bacon's optical works. Witelo's Perspectiva was completed at Viterbo, perhaps by about 1274, although it was at Padua that his interest in the subject had been kindled.²⁹⁴ The work was dedicated to William of Moerbeke, a papal confessor who was himself a keen student and translator of scientific texts.²⁹⁵ The Perspectiva of Witelo soon became regarded as an authoritative compendium of optical theory, based as it was on Alhazen's De aspectibus and all other extant optical treatises.²⁹⁶ It formed one of the major channels through which Alhazen's theories were disseminated.²⁹⁷

In his dedicatory epistle to William of Moerbeke, Witelo gives an account of light that is reminiscent of Grosseteste's De luce and of Bacon's De multiplicatione specierum.²⁹⁸ After praising William's optical pursuits, Witelo alludes to the derivation of earthly forms from divine origins, through light. Considering the extension of matter, he remarks:

Quia itaque lumen corporalis formae actum
habet: corporalibus dimensionibus corporum
(quibus influit) se coaequat, et extensione
capacium corporum se extendit: attamen quia
fontem (a quo profluit) habet semper secundum
suae virtutis exordium: prospicere dimensionem
distantiae (quae est linea recta) per accidens
assumit, sic que sibi nomen radii coaptat.

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Witelo has substituted the term forma for Bacon's species. As in Bacon's writings, these forms obey the laws of Euclidean geometry. Witelo distinguishes between natural lines or light rays, which have some corporeity, and the imaginary mathematical

ones which plot the passage of light.

Est ergo in linea radiali, secundum quam sit diffusio luminis, aliqua latitudo, propter quam inest ei sensibilitas, et in medio illius lineae est linea mathematica imaginibilis, cui omnes aliae lineae mathematicae in illa linea naturali aequidistantes erunt ... utemur in demonstrandis passionibus lucis figuratione linearum mathematicarum in processu. 300

When Witelo discusses the perception of distance and space and the psychology of sight, he repeats Alhazen's arguments and occasionally inserts some additional material.³⁰¹ He defines distance as the absence of contact between forms; it is not apprehended by the eye alone but with the assistance of the discriminative faculty.

Intentio enim remotionis inter duo corpora est privatio contactus propter aliquod spatium inter illa duo corpora existens: non comprehenditur ergo remotio per se a visu, sed auxilio virtutis cognoscitivae et distinctivae cognoscentis utrumque extremorum corporum et distinguentis inter illa ... 302

Since objects are not seen when the eyes are closed, reason concludes that they do not exist within the eye, but outside it; and, because there is evidently no contact between the eye and the object, that there is distance between them. This conclusion leads Witelo to make the universal proposition that "omnia visibilia sunt extra visum, et quod inter quamlibet rem visam et ipsam visum est remotio".³⁰³

In considering the corpora ordinata et continuata by virtue of which distance can be assessed, Witelo provides another definition and names some of the incidental forms that might occur between the observer and the visible object:

Dicimus vero corpora ordinata et continuata,
quae sunt in aliqua linea quasi recta disposita,
in aequali quasi ab invicem distantia, ut sunt
arbores, vel montes, vel altes turre, et
similia ...

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Witelo explains that a sense of distance can derive from familiarity with the terrain, of having walked over given areas, measuring them in relation to the body. This knowledge is helpful in the case of extreme distances, which can only be guessed:

... mensurantur enim ... per pedes hominum, quando frequenter ambulant super illa spatia, sicut etiam mensurantur per extensiones brachiorum, et virtus distinctiva comprehendit istam veram mensurationem, et certificat ex ea quantitates partium terrae continuatarum cum corpore hominis videntis: et hoc quiescens in anima est principium mensurationis omnium remotionum secundum aestimationum.

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Witelo devotes a separate section to errors in judging distance. Difficulties arise, for instance, in looking at very remote trees, which are seen to be almost adjacent in spite of the spaces between them;³⁰⁶ or in judging the distance between overlapping forms:

... si videantur duo corpora, quorum unum sit retro alterum, ita quod anterius cooperiat partem posterioris, et alia pars emineat, nec inter ea fuerint aliqua corpora visa, et sit remotio temperata non multum certa: tunc non plene aestimabitur mensura longitudinis unius ad alterum, et forte iudicabit visus ipsa esse sibi valde propinqua ...

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Elsewhere, Witelo considers how size can be known when it is only certain surfaces, not the full dimensions of a body, which are apprehended at any one time.³⁰⁸ His discussion of corporeity itself remains close to Alhazen's.³⁰⁹

(iv) John Pecham: c.1230-c.1292

Pecham taught and studied at Paris and Oxford before becoming Archbishop of Canterbury in 1279.³¹⁰ His interest in optics was no doubt stimulated at Oxford, where the influence of Grosseteste was still felt; and possibly sustained by direct contact with Roger Bacon, his fellow Franciscan, at Oxford and Paris;³¹¹ and through contact with the papal court at Viterbo, where Pecham held a lectureship for two years from 1277.³¹² His two works on optics are the Perspectiva communis (1277-1279) and Tractatus de perspectiva (1276-1277).³¹³ Of all writings on the subject, the first of these was to become by far the most popular, a fact which is attested by the relatively large number of existing manuscripts, of which twenty-nine date from the fourteenth century.³¹⁴

If it was the purpose of Witelo's work to provide a commentary on Alhazen, it was the intention of John Pecham's Perspectiva communis to provide an elementary introduction to a subject which, by the 1270's, had become extremely complex.³¹⁵ Pecham refers to existing treatises, "Cuius sententias magnis deductas ambagibus in conclusiva compendia coartabo".³¹⁶ Of the authors whom Pecham summarises in the Perspectiva communis, those most prominently used are Alhazen, Witelo and pseudo-Euclid. In addition, Pecham pays attention to the theories of vision supported by Grosseteste and Bacon and he is familiar with the optical works of Greek and Arabic authors.³¹⁷

In Pecham's treatise familiar concepts are presented in succinct form and a careful synthesis emerges.³¹⁸ Light and colour are emitted by objects and have an effect in the eye.³¹⁹

Radiant pyramids proceed from visible objects into the adjacent medium. Rays enter the eye provided that they are perpendicular to its surface.³²⁰ The sensitive part of the eye is the glacial humour (i.e. crystalline lens), on which the order of forms in the visual field is preserved.³²¹ Rays do proceed from the eye, but they are not sufficient to explain vision.³²² By species, a term which he frequently uses, Pecham evidently intends a notion of the propagation of light close to Bacon's theory of multiplication.³²³ In general, his method of compression leaves unsaid a substantial amount of detail. Pecham's abbreviated version of Alhazen's account of the perception of distance, to quote a point of comparison already used, repeats Alhazen's conclusions and a few of his observations but without the phalanx of arguments found in the source.³²⁴

E. PERSPECTIVA IN THE LATER MIDDLE AGES

(i) Historical Development of Optical Theory

The foregoing account gives some idea of the content of the treatises on perspectiva current in the fourteenth century, and of the terms in which light, vision and space were debated. At one extreme lay the Platonic idea of extramission, supported by Ptolemy and Galen. According to this theory, rays emitted by the eyes fused with luminous air to become percipient, either by receiving impressions of the visible objects in mid-air, or by travelling to them. At the other extreme, Aristotle had maintained an intromission theory, namely that objects affect the eye through surface colour when activated by light. In the classical period, Euclid sidestepped the problem of whether rays were sent from or received by the eye in representing them as a conical arrangement of straight lines. His geometrical account of vision was to remain an essential component of all later theories of perception. Its main deficiency, a neglect of the experience of vision, was partially remedied by Ptolemy in his version of perception. For him, the visual cone was not composed of individual lines but of a single beam responsive to distance, height, width, direction and shape. Ptolemy's explanation of spatial perceptions was the most subtle to date and took account of the functions of touch, colour and movement.

Arabic writers began by endorsing the extramission theory of vision. Hunain followed Galen. Alkindi, like Ptolemy before him, modified Euclid's notion of one-dimensional rays. He also introduced the idea, fruitful to later theorists, that from every object there constantly flow omnidirectional visual

rays. Avicenna launched an attack on Galenic theory, arguing that since after-images exist when the eye turns from bright objects, rays must travel to the eye from the object. Avicenna also succeeded in reconciling this Aristotelian explanation with Euclid's geometrical optics. Averroes' later support for Aristotle made the extramission theory increasingly untenable.

Alhazen occupies a central position in medieval optical theory. Perhaps it is inevitable that his researches took place in a culture untrammelled by the traditional Christian and neoplatonic associations of light and vision. Alhazen regarded light and vision as facts of existence which explained the phenomenon of space. An eclectic but original scientist, he used the after-image argument to support intromission; acknowledged the value of Euclidean geometry as a convenient fiction; and integrated the radiation theory of Alkindi with the idea of a single punctiform image projected on to the crystalline lens. Alhazen's discussion of the prerequisites of vision, of the various stimuli which make clear vision possible, and of the judgement of distance and solidity, put the psychological study of perception on a firm footing. He accelerated the process by which perception became a self-conscious act.

Grosseteste, writing in ignorance of Alhazen, continued to support an extramission theory of vision, though it was undoubtedly the concomitant study of geometry which attracted the mathematically minded bishop of Lincoln. Grosseteste's great achievement, in forging an alliance between physical and metaphysical ideas of light, gave optics the passport to

Christendom. Bacon's function was to synthesise, incorporating the theories of Alhazen with those of Grosseteste, expanding the idea of irradiation into a fully fledged doctrine of the multiplication of species, and fusing extramission and intromission theories of vision. Witelo too emerges as an assimilator, commenting on Alhazen with the benefit of later works by European writers, and providing an ever more detailed account of the processes and errors of vision. Pecham contents himself with an introductory work to a subject which by his day was well established and much esteemed.

(ii) The Status of 'Perspectiva'

In Grosseteste's opinion, optics held a pre-eminent position among the sciences since it was devoted to studying the earthly manifestations of that light which was the first cause of creation. Through a process of spiritual illumination such a discipline would lead towards an understanding of the divinity.³²⁵ Roger Bacon, in Opus maius, had stated that optics is far more pleasing and noble than mathematics or any other science because its subjects are vision, light and colour - the essentials both of beauty and cognition:

Potest vero aliqua scientia esse utilior, sed nulla tantam suavitatem et pulchritudinem utilitatis habet. Et ideo est flos philosophiae totius et per quam, nec sine qua, aliae scientiae sciri possunt.

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Witelo and Pecham were not so effusive. Witelo argued for the utility of optics along the same lines as Grosseteste. It is a study of light, which is "primum omnium formarum sensibilium".³²⁷ Pecham introduced his Perspectiva communis

by noting:

Perspectiva igitur humanis traditionibus recte
prefertur, in cuius area linea radiosa
demonstrationum nexibus complicatur, in qua
tam physice quam mathematice gloria reperitur,
utriusque floribus adornata.

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The less exalted tone of the later writers does not signal a decline in enthusiasm for the subject, but rather the contrary. By the 1270's optics had come of age as a legitimate science in its own right and the need to justify its intrinsic worth was diminishing.³²⁹ Indeed, sight had always been regarded as the superior sense and apologists were able to draw on this tradition to win a more ready acceptance for the 'new' science.³³⁰

The extensive scholarly interest in optics during the thirteenth and fourteenth centuries can roughly be gauged from the large number of surviving manuscripts from that period which are exclusively concerned with the subject.³³¹ The influence of Grosseteste in promoting the study of perspectiva should be stressed. His long-standing connections with Oxford as undergraduate, Chancellor, lecturer to the Franciscans and then bishop of Lincoln, in whose diocese Oxford lay, meant that succeeding generations of scholars absorbed his views on the utility and special status of optics among the natural sciences.³³² The presence of his theories in the writings of Bacon, Witelo and Pecham has already been noted. Some mention should also be made of Bartholomaeus Anglicus (c.1190-c.1250);³³³ Robert Kilwardby (d. 1279);³³⁴ the anonymous author of the Summa philosophiae (written 1265-1275);³³⁵ John of Dumbleton (fl.1331-1349) and Walter of Odington (fl.1301-

1330).³³⁶ All of these men studied at Oxford and wrote to a greater or lesser extent on perspectiva.

By the end of the thirteenth century, perspectiva was an accepted component of the arts courses at the universities. Geometry had always been one of the subjects of the quadrivium and perspectiva found its natural home as a science 'subordinated' to geometry.³³⁷ The curricula and catalogues which have survived indicate that the works of Alhazen, Witelo and Bacon were commonly used as text-books. At Oxford, it was possible by 1350 to substitute Alhazen or Witelo for Euclid;³³⁸ while a later forma (1431) for inception in the faculty of arts at Oxford lists optical texts in the geometrical section of the quadrivium.³³⁹ The optical works of Ptolemy, Euclid and Pecham may also have been used in the faculty.³⁴⁰ The records of the library at Merton College, which in the fourteenth century was the centre of a scientific school, show that Plato's Timaeus, Aristotle's De anima and De sensu, the optical works of Alhazen, Witelo and Bacon, Grosseteste's De luce, pseudo-Grosseteste's Summa philosophiae, Bartholomaeus' De proprietatibus rerum and Peter of Limoges' De oculo morali were all available and in use.³⁴¹

By the mid-thirteenth century all of the major Greek and Arabic optical texts were available to scholars in translation. The second half of the century is marked by a process of assimilation and synthesis in the works of Bacon, Witelo and Pecham. Throughout the fourteenth century, however, virtually no new optical works of any significance were produced.³⁴² Interest was not declining; it became more pervasive as

perspectiva passed through a period of absorption into the intellectual consciousness of the age.³⁴³ During this time, its previous emphasis on geometrical explanations of vision gave way to a bias towards ontological problems about the physical phenomena of sight, a tendency appropriate to the prevailing philosophical climate³⁴⁴ as represented in the writings of Duns Scotus (c.1266-1308),³⁴⁵ William of Ockham (c.1285-1349),³⁴⁶ John Buridan (c.1295-c.1358)³⁴⁷ and Nicholas Oresme (c.1320-1382).³⁴⁸ In the later fourteenth century, optics was one of the subjects scrutinised by the scholastic method of Quaestiones, in which particular points would be raised and supporting and contradictory arguments rehearsed. There are surviving sets of Quaestiones on optics by Dominicus de Clavasio (fl.1349), Henry of Lagenstein (1325-1397) and Blasius of Parma (fl.1377-1416).³⁴⁹

It must be remembered that it was not only through scientific texts that perspectiva won an enthusiastic following. In the later middle ages, the numerous commentaries on Aristotle and on the Sentences of Peter Lombard provided opportunities for optical theories to be discussed.³⁵⁰ For instance, Albertus Magnus (c.1206-1280),³⁵¹ Richard Fournival (1210-c.1260)³⁵² and Thomas Aquinas (c.1225-1274)³⁵³ all display a well informed knowledge of the subject in their writings on light. Through these less specialised routes, as well as through more direct channels, the substance of perspectiva was spread and sustained among scholars so that in the fourteenth and fifteenth centuries

... there were more scholars taking a serious interest in vision than during any previous period of comparable duration in the history of mankind.

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In the next chapter I shall show how scholarly interests in perceptual processes and phenomena spread to less recondite levels, in encyclopedias and sermons.

CHAPTER 2:

TWO LINES OF INFLUENCE - ENCYCLOPEDIAS AND SERMONS

A. INTRODUCTION

In the previous chapter it was shown that the treatment of vision, light and space in scientific texts current in the fourteenth century is sophisticated and complex. Chaucer's handling of the same subjects in the literary field is comparably advanced. But if his use of optical matter can only be paralleled in the scholarly treatises on perspectiva, these interests of his would seem to have been precocious and esoteric. To be convincing as an intellectual context affecting his poetry at a fundamental level it must be shown that the content of the specialised optical texts was available in some diluted form to a wider section of the community than the scholarly one, in short to the sort of people who might have constituted Chaucer's audience. If a more general awareness of vision and related phenomena can be demonstrated, then Chaucer's enlargement of the visual and spatial content of his sources becomes explicable as part of a larger general development. The present chapter therefore considers evidence from two areas in order to form an impression of the non-specialised knowledge of perception in the fourteenth century. The two types of text to be considered are the encyclopedia and the sermon.

M.B. Parkes has distinguished three types of literacy in later medieval England:¹ that of the scholar or professional man of letters, fluent in both Latin and the vernacular languages; that of the cultivated aristocratic reader who used vernacular books for recreation; and that of the pragmatic middle class reader who had to read or write English in the course of transacting business.² With the benefit of these classifications

it is possible to allocate types of reader to types of text in which optical material appears. The specialist texts discussed in the previous chapter were accessible only to the first category of reader, the scholar or professional man of letters.³ The same is true of encyclopedias in Latin, although these works have a much wider appeal within the limits of their readership.⁴ On the other hand, vernacular encyclopedic texts were accessible to clerical and aristocratic readers. Such works were also attractive to bourgeois readers since they furnished a ready means of gaining access to a modicum of learning.⁵ With sermons it is a question not so much of readership as of audience, and while many sermons were primarily intended for court or university circles others - particularly those of the friars - were heard by all classes of society.⁶ It will be shown that visual topics thread through both encyclopedias and sermons. Certain perceptual ideas were thus familiar to large sections of the literate community in the fourteenth century. Chaucer, writing for the same community, writing as a bourgeois with aristocratic connections, therefore had the basis for a dialogue with his audience and readership:⁷ in using optical and optically derived material he was operating within well established territory.

B. ENCYCLOPEDIAS .

(i) The Medieval Encyclopedia

The medieval encyclopedia was an attempt to gather together all knowledge in abbreviated form. In this it would seem to differ little from its modern counterpart.⁸ But the crucial difference lies in the rationales behind such condensations of scholarship. Today there is no general, unifying philosophical principle that embraces and gives coherence to disparate disciplines; in the middle ages, the compilers of encyclopedias worked according to a principle of transcendent synthesis. Their object in amassing information was to demonstrate how each area of human endeavour had its place in a universal and divinely ordained plan. Indeed, it was through co-ordinating the different fields of knowledge and reducing them to components within a single structured and articulated work that the divine plan might become apparent.⁹ This intention is revealed in the title speculum which many encyclopedic works bear.¹⁰ Emile Mâle commented on one of the most ambitious and influential, the Speculum maius (1244) of Vincent of Beauvais: "L'énigme de Dieu, de l'homme et du monde, s'y trouve complètement résolue".¹¹ Vincent himself, in the prologue to his work, suggests that the speculum can be used in an improving manner; the observer can learn from what is reflected there:

Speculum quidem eo quod quicquid fere speculatione, idest, admiratione vel imitatione dignum est, ex his quae in mundo visibili et invisibili ab initio usque ad finem facta, vel dicta sunt; sive etiam adhuc futura sunt, ex innumerabilibus fere libris colligere potui, in uno hoc breviter continentur.

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Encyclopedic works were responsive to changes and developments in the pattern of medieval learning and necessarily so, since if they ceased to be all inclusive they could no longer claim to reflect a divinely ordained scheme for the universe. Placed in order of composition, the encyclopedias current in the fourteenth century reflect the vicissitudes of interest in optical theory over the centuries. Until the twelfth century such optical material as appears is of classical derivation; with the revival of learning the impact of Islamic science is felt; and by the mid-thirteenth century the extensive writings of European scholars are being absorbed. The medieval encyclopedic tradition abundantly demonstrates the existence of a major non-specialised channel through which optical theory became widely known. Admittedly the readership was still clerical, at least until the advent of vernacular versions, but the extremely wide circulation of encyclopedic texts argues that by the fourteenth century an acquaintance with optical theory, even if only in predigested form, was part of the scholar's standard intellectual equipment.

In what follows I have selected a range of works compiled from late classical times to the thirteenth century. The primary intention is to show what sort of optical knowledge could be obtained from encyclopedic sources in Chaucer's day, while the chronological arrangement of texts will give some impression of the fluctuations in the nature of the discussion. That discussion reaches a high point, both in terms of length and complexity, in the mid-thirteenth century, at a time when scholars in the West were making a synthesis of different

optical traditions. Undoubtedly, works compiled at that period were the most widespread of encyclopedias extant in the fourteenth century. The following account therefore centres on two of the most important, the De proprietatibus rerum of Bartholomaeus Anglicus and the Speculum maius of Vincent of Beauvais, after a preliminary examination of antecedent works.

(ii) Early Encyclopedic Works

The medieval encyclopedia has its roots in the handbooks produced for the educated layman of antiquity. The Pythagoreans in the sixth century B.C., with their belief in a wide general education;¹³ Aristotle in the fourth century;¹⁴ and Posidonius in the first¹⁵ were key figures in undertaking and promoting encyclopedic compositions. Roman authors plagiarised the Greek handbook sources, frequently without acknowledging their debt to the original compiler.¹⁶ Optical subjects first appear in a Roman work in the Naturales quaestiones of Seneca (4 B.C.-65 A.D.) whose chief sources were Aristotle and Posidonius.¹⁷ The first book contains a detailed discussion of meteorological problems that is "quite the best to be found in the West before the translations of the twelfth century".¹⁸ The problems dealt with include celestial fire, shooting stars, solar haloes and parhelia (the Greek term for the separate rays of the sun which stream through gaps in clouds).¹⁹ In the second book there is an extended discussion of thunder and lightning considered both as natural phenomena and as auguries.

Seneca's explanation of the rainbow includes some discussion of vision, reflection and refraction. He describes the theory

that a rainbow is formed by the reflection of the sun in numerous drops of falling rain, each drop acting like a small mirror. This leads him to consider a theory of perception involving similar principles, which he attributes to Aristotle, in which rays issuing from the eye are reflected back from smooth surfaces.²⁰ Two objections are raised to this idea: how it is that the myriad individual reflections of the sun in separate drops of water merge into a single rainbow image; and why, when the sun is one colour, the rainbow which is its reflection is polychrome. Seneca answers both of these questions by quoting examples of refraction and perspective distortion to show that "nihil esse acie nostre fallacius".²¹ Since they are at such a great distance the separate reflections of the sun do merge into one large image, while the colours of the rainbow derive from the diffusion of the sun's light in a cloud, for "Illud dubium esse nulli potest quin arcus imago solis sit roscida et cava nube concepta."²² Seneca's discussion continues with a comparison of clouds and regular mirrors, the apparent or real existence of a reflected image, the importance of the angle at which the sun's rays are reflected, and the distorting effects of mirrors.²³ He concludes with a lament about the general abuse of mirrors, illustrating his point with a scurrilous story about the obscenities practised by the actor Hostius Quadra.²⁴

The vast encyclopedic work by Pliny the Elder (A.D. 23/24-79), the Naturalis historia, is more compendious if less overtly scientific than Seneca's work.²⁵ Pliny describes the physiology of the eye in a way which suggests an extramission theory of vision,²⁶ but for the most part he is content with a series of

anecdotes and fables. For example, he describes the eyes of several Roman emperors, alleging that Tiberius Caesar was able to see in the dark; he associates an unblinking stare with bravery; and he declares that the eyes of certain animals shoot out light.²⁷ A quaint moral tone appears when Pliny

remarks of eye-lashes, "defluere eas haut inmerito venere abundantibus tradunt".²⁸ Both the Naturalis historia of Pliny and Seneca's Naturales quaestiones enjoyed great popularity during the middle ages and in certain ways became models for later encyclopedias.²⁹

Optical interests are entirely absent from the Etymologiae of Isidore of Seville (c.570-536) whose priorities are not scientific but pastoral.³⁰ Isidore takes his inspiration from St. Augustine who in the second book of De doctrina christiana had emphasised the importance of secular knowledge for accurate scriptural exegesis.³¹ In the Etymologiae, which was completed by Isidore's disciple Braulion,³² grammatical and rhetorical methods are adapted to an encyclopedic matter. The range of content reveals that scientific curiosity had by the seventh century become extremely diluted. The rhetorical trivium receives much more attention than the mathematical quadrivium.³³ Isidore makes no recourse to first-hand observation, relying entirely on bookish sources.³⁴ The section on geometry, under which optics might conceivably be treated, occupies only four pages in Lindsay's edition.³⁵ Here, Isidore is following Cassiodorus:³⁶ he notes that it is a function of geometry to measure terrestrial space,³⁷ and he defines solid figures as those "quae longitudine, latitudine et altitudine continentur, ut

est cubus".³⁸ There is no inkling of any connection between geometry and visual experience. Nevertheless it should be remembered that for its time the Etymologiae was a remarkable work, making a major contribution to the preservation and accessibility of information that might otherwise have been forgotten.³⁹ Throughout the next millennium Isidore's compilation was widely read and was still serving as a model for encyclopedists in the thirteenth century.⁴⁰

(iii) Twelfth Century Writers

In the twelfth century the widening of intellectual horizons has a dramatic effect on the content of encyclopedias. The Didascalicon (late 1120's) of Hugh of St. Victor (d.1141), for example, assigns an immense role to mathematics, although natural science still receives only brief discussion.⁴¹

Composing his influential work at the dawn of the renaissance, Hugh wrote without the benefit of Arab scientific scholarship.⁴²

Light remains a figure for the wisdom which illuminates man⁴³ and, in his Commentariorum in Hierarchiam Coelestem of Dionysius, for the truth which dispels the darkness of ignorance.⁴⁴ In

De mundi universitate, the cosmological work by Bernardus Silvestris (fl.1117-1147), Providence is represented as a vast mirror where live ideas and exemplars, and in which may be observed the creation of the universe:

Speculum igitur Providentiae mens aeterna, in qua sensus ille profundissimus, in qua rerum genitor extortorque omnium intellectus.

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The attitude to light and vision is different in the writings of William of Conches (c.1080-1154) where optical theory again becomes a live issue. It is most extensively discussed in

his glosses on Plato's Timaeus, where William remarks that if wisdom derives from observing the material world, then acts of vision are of particular importance:

Nichil enim maius est sapientia. Huius causa est visus sic. Cum homo visu notaret creationes rerum et creaturarum dispositiones, iniuncta est ei cura inquirendi naturas rerum et proprietates. Quas inveniens, vidensque eas et sapienter creari et sapienter disponi, quesivit cuius sapientia sic res crearet et disponderet; reperiensque nullius creature sapientiam hoc agere posse, confirmavit quamdam substantiam esse ingenitam, eternam, cuius sapientia hoc ageret. Et ea que invenit, scripto et voco alios docuit: et sic philosophia inventa est. Visus igitur est causa philosophie.

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William's notions reflect the current revival of interest in Platonic philosophy.⁴⁷ In the compendious and widely read Philosophia mundi,⁴⁸ he defines the eye:

Oculus ergo est quaedam orbiculata substantia et clara, sed in superficie aliquantulum plana, ex tribus humoribus, et septem tunicis constans.

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William goes on to consider alternative theories of vision, the preconditions of sight (interior ray, exterior light, object of vision) and the three sorts of perception: direct, reflected and refracted (contuito, intuito and detuito).⁵⁰ William's encyclopedic Dragmaticon (1144-1149), written in the form of a dialogue between the Duke of Normandy and a Philosopher, endorses the importance and superiority of vision.⁵¹ The eye sees by emitting a certain air, "substantia et subtilis", which Plato calls fire. This fire takes the form of a cone, and it fuses with external luminous air. Encountering an obstacle it spreads over the object's surface, receiving its form and colour, and returns the information to the eye.⁵² The Duke then poses a series of questions which test this theory. Alternative theories are

described and discarded. Reflection and the conditions necessary to vision are also discussed.⁵³

William taught in northern France;⁵⁴ his contemporary, Adelard of Bath (fl.1116-1142) travelled widely in Europe and Greece, reaching Sicily before 1116.⁵⁵ He was consequently more alert to the intellectual influences of southern Europe, Greece and Islam.⁵⁶ In his Quaestiones naturales, recently dated to 1107-1112,⁵⁷ Adelard professes to explain, in a dialogue with his nephew, the new knowledge which he has acquired from Arab scholars.⁵⁸ His account of vision, which considers four alternative theories, is relatively long and is further evidence that optics was again attracting attention. Yet the theory favoured is still an extramission one and the authorities cited are Boethius and Plato.⁵⁹ It may be that by presenting Greek theories in a novel Arabic guise Adelard was attempting to gain acceptance for ideas which in other circumstances might have been rejected.⁶⁰ In itself the use of such a device indicates the existence of a readership responsive to the learning of Islam.⁶¹

The four theories of vision which Adelard and his nephew discuss are as follows.⁶² First, the mind looks out through the eyes as if they were windows, perceiving and judging forms, but without anything passing between eyes and object. Secondly, shapes impress the intervening air and so pass to the mind for judgement. Thirdly, a "visibilis ... spiritus" emanates from the mind, passes out through the eye and meets in mid-air the shapes of visible objects which are then returned by the visible breath to the mind. Finally, a "vis ignea" is produced in the brain, passes through the optic nerves, is emitted by the eyes to the object and so returns "impressaque sibi more sigilli forma".⁶³ Objections are raised in turn to each theory. If, as the first theory

implies, the mind sees only external things, how is a man able to see the reflection of his own face?⁶⁴ If, as in the second theory, the air is impressed with the form of an object which travels to the eye, why does a piece of transparent glass not impede vision?⁶⁵ The third theory, involving the meeting of emitted rays and forms coming from the object, is found wanting because it fails to show how the same passage of air can simultaneously be impressed with an array of different forms.⁶⁶

It is the fourth theory which Adelard supports, first describing it in greater detail and then attributing it to Plato.⁶⁷ The visible spirit, travelling from brain to eyes to object and back again, moves "mira celeritate".⁶⁸ Its existence explains reflection, for the spirit is returned from the surface of a mirror; and Adelard concludes with some references to the Platonic notion that the visual spirit coalesces with the air before becoming effective.⁶⁹ His nephew raises objections to this last theory as well, asking how the visual spirit can possibly move with such immense speed as it must do when it goes to the distant stars; why when the eyes are shut, the visible spirit is not left outside; and why the spirit does not hinder itself in moving between the eye and objects. Adelard is able to answer these questions to his nephew's apparent satisfaction.⁷⁰

A later work, the De naturis rerum of Alexander Neckam (1157-1217), uses visual phenomena primarily as vehicles for spiritual and moral instruction.⁷¹ Nevertheless, the impact of Aristotle's natural philosophy is strongly felt, even if Neckam himself does not appear to be much versed in its content.⁷² Nor is his knowledge of optics itself very profound. He notes that the image of an observer in a concave mirror is inverted while it is

erect in a plane or convex mirror, but he is not interested in providing a scientific explanation;⁷³ and he retails some fabulous stories about the properties of the rays which issue from the eyes of the owl, bat, lynx, eagle and basilisk.⁷⁴ The items on which Neckam bases his figurative explanations are respectable if small components of contemporary optical theory. For instance, he describes how the sun appears larger in the morning than at midday because it is seen through the denser atmosphere which exists closer to the earth. Similarly, objects seen in water appear magnified. Neckam concludes:

Per aquas accipe tribulationes. Martyres in
tribulationibus positi majores erant quam tempore
pacis. Per solem designatur potestas, quae
quanto remotior est tanto videtur major. 75

There follows an account of the angle of tangency between the circumference of a circle and the plane on which it rests. Such an angle increases rather than diminishes with the distance of the circle. This is taken as an image of acquaintance with a powerful man. The more remote he is, the more desirable his friendship appears.⁷⁶

From direct vision and the relation of size to distance, Neckam turns to refraction. A straight rod placed in water appears bent. The waters represent tribulation and the straight rod good works. In the same way, the works of the righteous often seem to be distorted when they are in fact not so.⁷⁷ To represent tribulation in the soul, when qualities emerge which are not seen during times of peace, Neckam observes that

... denarius in fundo pelvis aqua repletae,
videbitur a procul stante, a quo aqua subtrahat
non videbitur. 78

Other optical material, including items on reflection, are treated

in a similar way. The custom of moralising items of optical knowledge was to continue in the sermons of the thirteenth century.⁷⁹

(iv) 'Speculum maius' of Vincent of Beauvais (c.1190-c.1264)

By the mid-thirteenth century the optical content of encyclopedias had considerably increased in order to take account of the research and scholarly interest which the subject was now generating. The first two books of Speculum naturale, the first part of Speculum maius (1244) by Vincent of Beauvais⁸⁰ have much to say about vision and light. Vincent's interests lie less in physics and more in theology⁸¹ and so he draws on the tradition of 'light metaphysics' noted in Hugh of St Victor and derived from Dionysius the Areopagite.⁸² God is light and nothing is illuminated except that which is created and formed by him.⁸³ By 'illumination' Vincent intends the illumination of the soul of man:

Lux enim patris invisibilis in se, procedens in nos, et exiens in manifestationem vacuos invenit, et manes a vero bono; et infundens se nobis, replet nos secundum uniuscuiusque nostrum virtutem et capacitatem, et cum repleverit nos convertit, ut non dissideamus a patre, sed in eadem similitudine et imagine respiciamus ad ipsum. Replet quidem illuminando, convertit lumina faciendo.

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Divine illumination is transmitted through the angelic hierarchies who communicate to each other and to the human recipient the fire of love (ignis caritatis), the flame of which strives to ascend to God.⁸⁵ The interior soul of man is accessible only to God himself, the angels performing a ministerial function.⁸⁶ An analogy is drawn with the effect of light on a window. God can shine through to the soul like rays of sun into a room provided that there is a means to do so:

... Angelus dicitur dare intellectum homini:
sicut dicitur dare lumen domui suae, qui fenestram
facit, cum eam sua luce non penetret vel illustret. 87

Vincent summarises two alternative theories about the creation of light. The first maintains that light was part of the work of the first day of creation and is therefore not identical with the light of the sun. The second argues that the light of the first day was essentially of the same nature as diurnal illumination.⁸⁸ In either case terrestrial light was created to make vision possible, and

... quatuor sunt quae in visione concurrunt,
scilicet visibile, visivum, et lux per quam
visivum videt visibile, et medium. 89

Light takes primacy among these preconditions because by its nature it is most noble. Visible objects can be classified according to their participation in light:

Sunt autem tria genera corporum visibilium,
scilicet luminum, quod dat lumen, et opacum
quod in superficie, non in profunditate lumen
recipit, et diaphanum, quod secundum omnem sui
partem lux subintrare potest. 90

The more anything participates in light the closer it approaches the divine and beautiful, for God is light. For this reason, water is more noble than earth, air than water and fire than air.⁹¹

Light is like a fountain, having the properties of expansion, propagation and multiplication.⁹² It is the most subtle and simple of substances, the motivating principle of life.⁹³ It is the first form from which all other forms proceed and its activity mirrors the propagation of God's goodness and beauty:

... ipsa est omnium corporum optima: cum enim bonum sit quod sui communicativum est: inter omnia corpora lux se, et suam pulchritudinem maxime communicat: unus enim lucis punctus, vel ictus subito totius mundi spacium replet. Igitur inter corpora summe bona est.

In hoc etiam spiritui simillima est, scilicet
Deo, qui ubique est, et animae, quae totum
corpus replet ...

94

In general, Vincent's sources on light are theological. For example, he refers to Dionysius, Hugh of St. Victor, Peter Comestor, Peter Lombard, Augustine and Ambrose.⁹⁵ For scientific authority he turns almost exclusively to Aristotle and on rare occasions to Avicenna and De visu which is presumably Euclid's work of that name. In spite of this bias, Vincent assumes that the phenomena of vision are familiar.

In the course of considering whether light is corporeal or a quality Vincent refers to an argument involving the behaviour of species. Their behaviour suggests that light is neither abstract nor miscible:

... duae autem luces in eadem aeris parte
simul sunt: ut patet in diversis candelis
accensis, quarum luces cum sint eiusdem speciei,
simul in eadem parte manent, nec admiscetur ad
invicem naturae aeris, ut in perspectiva
dicitur. Alioquin omnia confuse viderentur,
et nulla distincte.

96

On the other hand, if light is corporeal it has three dimensions. But then so do the objects of perception. Therefore "si lux est corpus ... erunt duo corpora simul in eodem loco, quod esse non potest".⁹⁷ A resolution of the two opposed views is made in the argument that "Cum autem sit lux, materia non tantum creatur, sed forma gignitur a corpore luminoso".⁹⁸ This does not make of light a spiritual substance, for spiritual substances have no measurable dimensions; but light, both in its propagation and in the forms which it produces, does possess dimension.⁹⁹

Vincent notes that the sensitive part of the eye is the crystalline humour and he presents arguments for and against the emission of light from the eye, considering such a possibility

as an adjunct rather than an alternative to the exclusive emission of light from the object.¹⁰⁰ He describes also the distinctions between lux, lumen and splendor:

... lux est in propria natura, lumen autem in subiecto recipiente. Porro radius exitus luminis, secundum lineam rectam. Radiusum vero est, scilicet corpus politum, in se lumen non habens, radios tamen reflectens. Splendor autem est ipsa luminis reflexio a reflexione radiorum procedens.

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The colour which light transmits lies on the surface of the object unless light can penetrate the surface as it can the sea. Colour can be affected by distance, as when clouds or vapour intervene between the rays of the sun and an observer.¹⁰² Elsewhere, Vincent describes an experiment to show that light is the essential cause of colour:

... si parum de vino rubeo infundatur in vitro puro: Sol penetrans vinum, generabit albedinem in fundo vitri, quae inter omnes colores similior est luci. Si vero multum infundatur non erit in fundo vitri, quia tunc lux non potest intrare, ut multiplicetur in fundo.

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(v) 'De proprietatibus rerum' of Bartholomaeus Anglicus (c.1190-c.1250)

Undoubtedly the most popular encyclopedia in the later middle ages was De proprietatibus rerum by the Franciscan, Bartholomaeus Anglicus, a work compiled between 1230 and 1240 and so predating Speculum maius.¹⁰⁴ De proprietatibus rerum appears with great frequency in the manuscript collections of Europe. For example, Thorndike notes eighteen manuscripts, chiefly of the late fourteenth and early fifteenth centuries, at the Bibliothèque Nationale in Paris, where it was prescribed as a university textbook.¹⁰⁵ In English libraries alone, twenty-three manuscripts in English hands survive,

of which the majority date from the fourteenth century.¹⁰⁶ The work is a common item in wills of the later medieval period.¹⁰⁷ The continuing usefulness of De proprietatibus rerum is shown in the number of vernacular versions which appeared. An Italian translation was made in the early fourteenth century; it was translated into French by Jean Corbéchon in 1372 and into Provençal before 1391; an English version by John Trevisa appeared in 1398; and a Spanish translation was made in the early fifteenth century.¹⁰⁸ Bartholomaeus' work is thus "an illustration of the rough general knowledge which every person with any pretense to culture was then supposed to possess".¹⁰⁹

The familiarity and ease with which Bartholomaeus cites his authorities leads Thorndike to conclude that he had a first-hand knowledge of the sources concerned.¹¹⁰ When it comes to dealing with optical matters, references are made to Pliny, Isidore and Bede; Chalcidius, Aristotle, Hippocrates and Pythagoras; Augustine, Pseudo-Dionysius, Basil and Ambrose; and Alhazen, Constantinus (the translator of Hunain), Albumasar, Haly Abbas, Algazel, Averroes and Avicenna.¹¹¹ Bartholomaeus' reading thus reflects the encyclopedic, classical and theological traditions of optics as well as the more recently accessible writings by Arab authors and commentators. So he is relatively up to date in his summaries of optical theory,¹¹² which are particularly provided in chapters on the sense of sight (III.17) and the properties of the eyes (V.5-9). Bartholomaeus also considers disorders of the eyes and their cure (VII.15-19), light and shadow (VIII.40-45), the rainbow (XI.5) and the relation of light to colour (XIX.8).¹¹³

At the beginning of his account of sight, Bartholomaeus sets out the prerequisites of vision. These are similar to the requirements laid down by Alhazen.¹¹⁴ There needs to be a healthy eye, a facing object, a moderate distance, a place for the object not too far from the line of vision, solidity in the object, perceptible size, clarity in the intervening space, illumination and time for the image to pass to the eye.¹¹⁵ The three forms of vision are described: direct, reflected and refracted.

Bartholomaeus gives most attention to refraction which occurs when rays, encountering variations in the density of the medium, "non ... vadunt incessu recto semper, sed aliquando divertunt a via recta".¹¹⁶ Rays between the eye and the visible object assume the form of a pyramid with its apex in the eye and its base on the object:

... a cuius partibus venit species super lineas
rectas cadentes in centrum oculi, quo omnes lineae
ductae a singulis partibus rei faciunt unam
pyramidem, cuius conus est in pupilla, et basis in
re visa ...

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On the vexed question of whether rays proceed from the eye or to the eye, Bartholomaeus entertains both extramission and intromission theories.¹¹⁸ On the one hand, the eye does not see except through those species which travel in straight lines to the centre of the eye in the form of a pyramid. But there is another pyramid, comprised of emergent rays:

... non solum venit species rei visae ad visum
secundum pyramidem visuaem, sed species visus
ad rem super consimilem pyramidem extensam in eodem
loco ... exit ab oculo conus pyramidis et dilatatur
eius basis super totam superficiem rei visae.

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Bartholomaeus goes on to argue that since light must shine on an object before it can be seen, "necessario exigitur tertia pyramis, scilicet, ipsius lucis".¹²⁰ The base of each pyramid

is on the object, its point in the eye. Only when the eye registers three sets of species from these three pyramids can the act of vision be completed.

In the chapter on light, a distinction is made between lux and lumen. Lux is the primal light that came into existence on the first day of creation: it is the source and origin of lumen or irradiation:

... lumen est quidam defluxus a luce, sive
irradiatio defluens a substantia lucis.
Lucem autem dicit ipsam fontalem substantiam,
super quam lumen innititur.

121

Bartholomaeus discusses at length how light can be a corporeal substance since it is, as biblical and patristic authorities assert, the informing agent of creation.¹²² The arguments are reminiscent of Grosseteste's De luce, and there likewise occurs in De proprietatibus rerum a reference to the three-dimensional propagation of light:

Lux etiam ... est maxime mobilis, incessanter
enim movet se et gignit linealiter et circumferenter
in omnem partem se movendo et diffundendo.

123

Bartholomaeus repeats that there is an intimate link between light and perception, one being a condition of the other, and he notes that certain bodies are more receptive to light than others.¹²⁴ In the chapter devoted to the relation of light and colour, he describes how colour multiplies itself in the space between eye and object, using light as its necessary vehicle.¹²⁵

(vi) 'Sidrak and Bokkus' (14th. cent.)

The encyclopedia of Bartholomaeus was available in English at the very end of the fourteenth century. At much the same time an anonymous encyclopedia in English verse, probably based on the

French version, was circulating under the title of Sidrak and Bokkus.¹²⁶ This work begins by telling the story of how a pagan king, Bokkus, is converted by Sidrak, a Christian philosopher. There follows a long series of questions, posed by the king, in reply to which Sidrak unfolds the mysteries of the universe. These popular expositions refer on several occasions to perception, but the discussion is neither as extensive nor as advanced as that found in De proprietatibus rerum. Thin clouds appear white because they allow the passage of light; thick clouds are black because they impede it.¹²⁷ Stars may appear to fall from the sky but the eye is deceived.¹²⁸ Sight causes sorrow because "li cueur ... est la fontaine des yeulx".¹²⁹ The familiar connection between eyes and heart in erotic love is elsewhere described.¹³⁰ The eyes are held to be the most perilous parts of the body, since they can lead the soul and the body to sin through desires produced by visual delights.¹³¹ In the following reply, the eye is used metaphorically as "la lumiere du corps". Just as the body can advance surely with the guidance of the eyes, so those who teach goodness are the light of the world.¹³²

In one chapter, Sidrak is asked the question which had caused much controversy in optical writings: whether in the act of vision something is emitted by the eye or whether the shapes of objects are in some way received by it. The philosopher's reply implies a combination of both intromission and extramission theories, but the stress falls on the rays entering the eye:

Nulle chose du monde ne peut yssir selle nest
entree premierement / et ainsi est il de la veue

des yeulx / car elle entre dedens les yeulx
entretant que les yeulx regardent leur moiteur
et leur facon tire la semblance de celle chose
dedens les yeulx et la voit ainsi comme le
soleil tire a soy et voit la moiteur du mesrien
et la rousee et la rendent a la cervelle et la
cervelle rent celle mesmes semblance et celle
mesmes facon au cueur / et le cueur les attrait
a luy et les detient grant temps si que il en a
la congnoissance / et pour ce que la veue en
entre es yeulx et court a la cervelle et la
cervelle la rend au cueur et le cueur si la
pense et si voit clerement la maniere des choses
que il a aucune ffois veuez / mais se la veue ne
entroit es yeulx le cueur ne verroit point la
chose / car nulle chose ne peut yssir se elle
nest entree avant.

133

Burton cites the source of this passage, as it appears in the English version, as William of Conches' De philosophia mundi. Although William is evidently a major influence on the author of Sidrak, he is not entirely responsible for the theory of vision expressed here. For William uses exactly the opposite emphasis to Sidrak, and stresses the primacy of extramission.¹³⁴

This brief survey of medieval encyclopedias demonstrates that by the mid-thirteenth century summaries of certain basic principles and theories concerning the eye, vision and light were readily available. A gradual increase in the length and complexity of these optical discussions suggests that the compilers were responding not only to the increasing popularity of encyclopedias, but also to a quickening of interest in the subject of optics. Those who consulted these compendia were by and large the intelligentsia of the universities and the church. But optics was not the exclusive preserve of the cognoscenti: it found its way as a subject of interest into sermons and was thus communicated to wider sections of the community.

C. SERMONS

(i) The Inner and Outer Eye

In the theological tradition, it had long been the practice to draw analogies between the outer eye of the body and the inner eye of the soul.¹³⁵ The Bible itself provides the foundation for such comparisons. For instance, the first chapter of St. John's gospel contains these words:

In ipso vita erat,
Et vita erat lux hominum:
Et lux in tenebris lucet,
Et tenebrae eam non comprehenderunt.

Fuit homo

Missus a Deo,

Cui nomen erat Ioannes.

Hic venit in testimonium

Ut testimonium perhiberet de lumine,

Ut omnes crederent per illum.

Non erat ille lux,

Sed ut testimonium perhiberet de lumine.

Erat lux vera,

Quae illuminat omnem hominem

Venientem in hunc mundum.

136

Plotinus (A.D. 204-270) perpetuated and stressed the importance of inner vision.¹³⁷ Augustine (354-430) inherited Platonic and neoplatonic ideas about the epistemological, cosmogonic and physical significance of light and vision.¹³⁸ In De trinitate, for example, he describes how too much attention to external vision can pervert internal perception.

Sed anima rationalis deformiter vivit, cum secundum trinitatem exterioris hominis vivit; id est, cum ad ea quae forinsecus sensum corporis formant, non laudibilem voluntatem, qua haec ad utile aliquid referat, sed turpem cupiditatem qua his inhaerescet, accommodat. Quia etiam detracta specie corporis quae corporaliter sentiebatur, remanet in memoria similitudo eius quo rursus voluntas convertat aciem, ut inde formetur intrinsecus, sicut ex corpore obiecto sensibili sensus extrinsecus formabatur. Atque ita fit illa trinitas ex memoria, et interna visione, et quae utrumque copulat voluntate.

139

At the end of the fifth century, Dionysius the Areopagite evolved a mystical theology which made extensive reference to light both as the instrument of God's creative urge and as a symbol of spiritual revelation. In De divinis nominibus, for example, Dionysius explains how light informs creation before going on to expound its other qualities:

Nunc autem intelligibilem per-se-boni
lucivocationem nobis laudandum, et dicendum
quoniam lumen intelligibile qui bonus dicitur,
propter omnem super, caelestem intellectum
replere intelligibili lumine, omnem autem
ignorantiam et errorem expellere ex omnibus
quibus utique infit animabus, et omnibus
ipsis lumen sacrum tradere, et intelletuales
ipsarum oculos repurgare a circumposita ipsis
ex ignorantia nebula, et remove et replicare
multa gravitate tenebrae conclusos ...

140

Gregory (d.604), in his commentary on Job, writes of the contemplation of scripture through the eye of the mind:

Scriptura sacra mentis oculis quasi quoddam
speculum opponitur ... ut interna nostra
facies in ipso videatur. Ibi etenim foeda,
ibi pulchra nostra cognoscimus. Ibi sentimus,
quantum proficimus, ibi a propectu quam longe
distamus.

141

Later still, Hugh of St Victor (d.1141), commenting on pseudo-Dionysius, distinguishes in man three eyes: of flesh, reason and contemplation. Each has its own proper function:¹⁴²

Est autem oculus triplex: oculus carnis,
oculus rationis, oculus contemplationis.
Oculus carnis apertus est, oculus rationis
lippus, oculus contemplationis clausus et
caecus. Oculo carnis videtur mundus, et ea
quae sunt in mundo. Oculo rationis animus,
et ea quae sunt in animo. Oculo contemplationis
Deus, et ea quae sunt in Deo. Oculo
carnis videt homo quae sunt extra se; oculo
rationis quae sunt in se; oculo contemplationis
quae sunt intra se et supra se. Ergo
Deus, quod est, incogitabilis est, sed
hominum, et humanae rationi; quae non
percipit, nisi quod novit, vel secundum id
quod novit, quod est in se vel extra se.

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With the revival of science in the twelfth and early thirteenth centuries, analogies between the inner and outer worlds of light and vision become more precise, more technical. De naturis rerum by Alexander Neckam is an early attempt to attach moral attributes to optical data.¹⁴⁴ The process received further impetus from the writings of Robert Grosseteste. By insisting on the derivation of corporeal light from spiritual light he conferred a special status on optical phenomena: they could actually reveal the workings of the spiritual world. Grosseteste writes in his commentary on the Analytica posteriora of Aristotle:

Dico ergo quod est lux spiritualis que superfunditur rebus intelligibilibus, et oculus mentis qui se habet ad oculum interiorem et ad res intelligibiles, sicut se habet sol corporalis ad oculum corporalem, et ad res corporales visibiles. Res igitur intelligibiles magis receptibiles huius lucis spiritualis magis visibiles sunt oculo interiori, et magis sunt huius lucis receptibiles que nature huius lucis magis assimilantur. Res itaque huius lucis magis receptibiles ab acie mentis, que similiter est irradiatio spiritualis perfectius penetrantur, et hec penetratio perfectior est certitudo maior. 145

Since perspectiva, through its concern with light, had acquired theological sanction, it must have seemed a particularly suitable subject for inclusion in sermons.¹⁴⁶ Furthermore, to the preacher who had to capture the interest of his audience the less recondite features of optics were especially attractive, for they allowed him to allude to visual phenomena which could be verified either from personal experience or from simple experiment.¹⁴⁷

(ii) 'Exempla', Grosseteste and the Friars

It is then as moralised examples or exempla¹⁴⁸ that optical material appears in sermons of the thirteenth and fourteenth centuries. Such exempla customarily had their place in the major section of the sermon, the dilatatio or development, where they would be framed by appropriate biblical allusions to light and perception.¹⁴⁹ The great preachers of this period, though by no means the only preachers, were the Dominicans and Franciscans. Resolved as they were to evangelise, the friars had need of some means whereby religious truth could be conveyed in a palatable form. The abstract conceptions of theology, if unrelieved by illustration or anecdote, would not hold a congregation.¹⁵⁰ Under this stimulus the exemplum became for the first time in the thirteenth century a fully fledged genre.¹⁵¹ The sermons in which exempla featured were delivered both in Latin and the vernacular, depending on circumstance.¹⁵² Dominicans and Franciscans preached to other clerics in their own churches and at the universities (ad clerum); at court;¹⁵³ and extensively in the open air in churchyards and at preaching crosses throughout the country (ad populum), where the congregation would be largely illiterate.¹⁵⁴

It is no coincidence that, almost without exception, the men who took a scholarly interest in optics were also associated with the two Orders in which preaching played such a large part. Grosseteste was influential in the early phases of the Franciscan movement at Oxford; Bacon, Pecham and Bartholomaeus Anglicus were Franciscan friars; Witelo's patron, William of Moerbeke, and Vincent of Beauvais were Dominicans. Grosseteste, Bacon and

Pecham were each at various times active at the Universities of Paris and Oxford from the early to mid-thirteenth century.¹⁵⁵ It would be misleading to suggest that there existed, either at Oxford or Paris, a school of optics in the proper sense of the word.¹⁵⁶ However, certain scholars and encyclopedists at both universities were responsible for initiating and sustaining a tradition of optical study and awareness which made itself felt not only in the intellectual life of the West but also, through the Latin and vernacular sermons of the itinerant brothers, in wider social spheres.¹⁵⁷ It is thus to Oxford and Paris that one must turn in order to locate the sources of instruction which, combined with the encyclopedic material, account for the appearance of perspectiva in sermons.

From its establishment in 1216 the Dominican Order reflected its founder's belief in the importance of doctrinal and intellectual study.¹⁵⁸ The friars arrived in this country in 1221 and went first to Oxford as the centre of learning which they were to make their headquarters in England.¹⁵⁹ Preaching held a crucial position in the ethos of the Order: it was regarded as the primary means by which religious truth was to be conveyed to the people.¹⁶⁰ Many surviving collections of exempla are of Dominican authorship.¹⁶¹ Grosseteste became well acquainted with the preaching friars and exerted his influence on them.¹⁶²

St. Francis, who never actively encouraged book learning, founded an Order which was to become renowned for its scholarship.¹⁶³ For, stimulated initially by their desire to combat disease and heresy, the Franciscans soon became enthusiastic in their pursuit of knowledge.¹⁶⁴ Arriving at Oxford in 1224 the Friars Minor

began to attend the theological lectures of the secular masters at the university in order that they might qualify as preachers.¹⁶⁵

At this time Robert Grosseteste was Chancellor at Oxford, his interest in scientific subjects being by then well established.¹⁶⁶

In 1229 or 1230 Grosseteste became lecturer to the Franciscans as the first of four consecutive secular masters to be appointed, a position which he held until his election to the see of Lincoln in 1235.¹⁶⁷

Thomas of Eccleston, the chronicler of the Order, records in his De adventu fratrum minorum (1232-1258) that under Grosseteste the brethren

... inaestimabiliter infra breve tempus tam
in questionibus quam praedicationi congruis
subtilibus moralitatibus profecerunt. 168

The impact of Grosseteste's teaching was felt throughout the Franciscan Order.¹⁶⁹ It comprised three essential elements: the study of the Bible, the study of languages and the study of mathematics and physical science. This last component centred on optics both as an illustration of mathematical law and as a study of light, the informing agent of the divine creation.¹⁷⁰

As bishop of Lincoln, Grosseteste himself preached to his own clergy,¹⁷¹ as well as taking friars of both Orders with him on his visitations of the diocese. On his death in 1253 he probably left his library to the Oxford convent of Franciscans.¹⁷²

Some 129 of Grosseteste's own lectures, exempla and sermons have survived in the form of dicta, collected and arranged by himself.¹⁷³ These reveal that the figurative use of vision and light was an important part of his mode of discourse. A favourite comparison is of the clerics of the church to the eyes of the body:

Prelati et doctores ecclesie in corpore
 Christi comparantur oculis, ut in Psalmo:
conturbatus est in ira oculus meus / Ps.
 xxx.10 /, et in Canticis: oculi tui columbarum
 / Cant. i. 14 / ... quia viam morum ceteris
 ostendunt membris suntque sicut dux itineris. 174

The eyes of the church are to be especially sensitive, for

Laicus fidelis saepe non sentit pulverum verbi
 otiosi nocentis nulli, vel officiosi mendacii;
 vos autem qui estis oculi sponsi, pulverum
 talem solícite debetis cavere, et, si vos forte
 contigerit, lachrymis compunctionis abluere ... 175

As the eye reflects the image of anyone who inspects it, so holy
 conversation should reflect the form and standard of right living
 to anyone who listens.¹⁷⁶ Clerics are not just eyes but also
 the source of light: "Cleri namque est lumine doctrinae alios
 illuminare".¹⁷⁷ They must shine, like stars, both within and
 without: within with the light of faith and without with the
 splendour of good works.¹⁷⁸ This light ultimately derives from
 God's love and in order to explain the workings of humility, one
 of the aspects of such love, Grosseteste introduces an exemplum
 describing how light changes when it passes through coloured
 glass:

Lux solis in sole vel in aethere sola lux
 est, nihil habens in se nisi naturam lucis
 ... cum tamen lux solis adjungitur colori
 existenti in perspicuo per quod transit,
 utpote colori vitri, incorporat se necessario
 illi colori et trahit secum etiam colorem
 illum, et fit ille color in natura luminis
 et lumen in natura coloris, et est radius
 vel croceus, vel Indicus, vel rubeus,
 secundum quod est color per quam transit ... 179

In the same way humility, in its primal state, is perfect and
 pure. It takes on an altered but not substantially different
 appearance when subject to the contingencies and limitations of
 particular human circumstances.¹⁸⁰

The tradition of instruction begun by Grosseteste was continued by John Pecham, among others, who became a lecturer to the Franciscans at Oxford between 1270 and c.1275.¹⁸¹ None of the sermons of Pecham has survived,¹⁸² but a prayer to the Virgin included in his Tractatus de perspectiva indicates that he was accustomed to interweaving optical data and devotional material. Pecham describes three types of solar ray: there are those which fall perpendicularly on earth, those which are refracted as they pass through the element of fire, and those which are reflected from clouds. Such knowledge is useful in the understanding and interpretation of Scripture:

Hoc igitur triplici radio cognito, via patebit ad innumerabilia scripturae mysteria, ad elucidanda etiam sapientiae magnalia et intelligenda eius praeconia, de qua canitur, sicut sidus radium profert Virgo Filium pari forma ... radium inquam qui puritate veri exemplaris incontemplabilis puritatis tuae nube obumbratus factus est cognoscibilis. Scriptum enim est: "Ecce Dominus ascendet super nubem levem et ingreditur Egyptum" /Isaiah 19:17; et sequitur ibi: "et cognoscetur Dominus ab Egypto" /Isaiah 19:21; et alibi: "Spiritus sanctus obumbrabit tibi" /Luke 1:35; et alibi: "Verbum caro factum est, et habitavit in nobis"; et sequitur: "Vidimus gloriam eius." /John 1:14. Et merito de te ortus dicitur sicut radius, quia sicut per radium sideris species clarescit, sic per natum de te filium, Tua Domina, puritas innotescit, puritas inquam qua iuxta Sanctum Anselmum maior sub Deo nequit intelligi; et quoniam sicut radius perpenditur excedere radium, sic ponitur luminosum excedere luminosum, sicut tuus radius excellit omne creatum, sic tua bonitas omne simpliciter limitatum, propter quod et dici poteris: "Sol occasum nesciens." 183

(iii) Encyclopedias and Preachers: 'Lumen animae' (late 13th-early 14th. cent.)

If preachers were to use optical and scientific material to draw

morals and point lessons, they had need of sources of information. These were not infrequently supplied by encyclopedias. It is significant that the two great encyclopedias of the thirteenth century were the work of mendicants.¹⁸⁴ With fellow preachers in mind, Vincent composed his Speculum maius. In the prologue he states that the work is intended for those at university involved in the study of arts through preaching, lecturing and disputing,¹⁸⁵ and more generally:

Accedit ad haec, et utilitas alia Doctoribus
et Praedicatoribus cunctisque scripturarum
sacrarum expositoribus minime contemplanda.
Ut enim Augustinus dicit, rerum ignorantia facit
obscuras figuratas locutiones, cum scilicet,
ignoramus vel animantium, vel lapidum, vel
herbarum naturas, aliarumve rerum, quae
ponuntur plerumque in scripturis alicuius
similitudinis gratia.

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Although Bartholomaeus does not make his purpose so explicit, De proprietatibus rerum also proved a mine of information for preachers, who found its summaries of natural science suitable for moralisation.¹⁸⁷

Some works supply the preacher with both optical data and moralisation. There is a species of text, half-way between the encyclopedia and exempla collection, which interweaves scientific lore with didactic applications. Such is the Lumen animae, dating from the late thirteenth or early fourteenth century, and edited by a Carmelite, Matthias Farinator, in the fifteenth.¹⁸⁸ The alphabetical index to his edition reveals the considerable extent to which cecitas, color, lumen, lux, oculus, speculum and visus are keywords, associated both with the physical and spiritual worlds. Thus light and heat are effective only in susceptible bodies in the same way that divine knowledge and love take their effect only in individuals

disposed to receive them through holy works and virtuous living.¹⁸⁹ Just as opaque bodies reflect light better than thin, translucent or transparent ones, so Mary reflects more of God's light than the celestial stars.¹⁹⁰ The optical similitudes can be considerably more elaborate:

Algazel in tractatu de forma speculi.
Speculum concavum et convexum non plumbo sicut stanno objectum tres facies intuentis cuiuslibet representat, ita tunc si a remotis ipsum speculum teneatur. Cuius quidem effectur et causa stat in hoc quod concavitas speculi resplendentiam vultus refrangit et reflectit in latera deorsum videlicet et in sursum quam obrem et in medio speculi una et in superficie due se facies representant. Tres igitur facies ipsum speculum in concavum representat cuiuslibet intuentis ... Per speculum igitur ipsa trinitas seu divinitas figuratur. Nam sicut speculum non relucet nisi mediantibus pyce vel plumbo quae utique si abstersa fuerint, nihil ipsum speculum representat. Sic revera per omnia nequaquam lucere poterit splendor deitatis quantum ad contemplationem ipsius mentis nisi mediantibus pyce humilitatis nostre et plumbo gravis correctionis et vindicte divine ...

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(iv) 'Liber de oculo morali' of Peter of Limoges (1230-1306)

There is an even greater attention to scientific detail in an extremely popular Parisian work, probably of the 1260's, which is devoted exclusively to the moralisation of optical data.¹⁹²

This is the Liber de oculo morali of Peter of Limoges.¹⁹³

Peter was born in the district of Limoges and became canon of Evreux, but refused higher office.¹⁹⁴ He became well known as a philosopher, mathematician, astrologer and preacher and was a member of the Sorbonne, to which he donated over 120 volumes.¹⁹⁵ At the time of his death he was canon of Evreux.

Glorieux further notes that Peter was at Paris from 1262, where he became a master of arts; and it is possible, though unproved, that he is the same man as the Petrus Lemovicensis described as decanus of the faculty of medicine between 1267 and 1270.¹⁹⁶

While at Paris, Peter made collections both of distinctiones, alphabetical lists of subjects useful to preachers, and of sermons by his fellow clerics.¹⁹⁷ The normal theatres of the Parisian preachers were the church, the royal chapel and occasionally the open air. Their sermons were delivered sometimes in Latin and sometimes in French.¹⁹⁸ Although the audience would therefore seem to have been relatively small and well-educated, Parisian sermons of the thirteenth century were extremely influential throughout Europe.¹⁹⁹ This is borne out by the large number of surviving manuscripts of De oculo morali itself: 158 at the latest count, of which forty-six exist in English libraries.²⁰⁰ Lecoy de la Marche identified the Parisian preacher with a Petrus Lemovicensis who was charged by the Pope with a mission to Henry III of England in 1259, and who visited London a second time, in 1262.²⁰¹ If the identification is correct, then it may be that Peter's appearance at the English court helped to promote the popularity of his sermons and their content in this country.

The preface of De oculo morali states the rationale of the book:

Si diligenter volumus in lege domini meditari facillime perpendimus ea que pertinent ad visionem et oculum pre ceteris frequentius in sacris eloquiis recitari. Ex quo patet considerationem de oculo et de his que ad ipsum spectant esse perutilem ad habendum divine sapientie noticiam plenioram.

The work is divided into fifteen chapters of varying length which follow a pattern designed to implement the above statement of intent. An item of optical knowledge is described, often in some detail and with reference to the appropriate authority; it is then given a spiritual or moral interpretation which in turn is supported from biblical and patristic texts. It is evident from the author's familiarity with a wide range of scientific data that he has first hand acquaintance with works on perspectiva.²⁰³ Among scientific authors Alhazen, Aristotle, Constantinus, Euclid, Pliny, Ptolemy, Seneca and Vitruvius are named.²⁰⁴

The first chapter of Peter's work illustrates the relatively specialised nature of his references and the ingenuity of his analogies. He begins by citing Constantinus and the first book of Alhazen's work on the science of perspectiva. Following them, he describes the structure of the eye: its four tunics (uvea, cornea, consolidativa and aranaea); three humours (vitreus, glacialis and albugineus) of which the glacial humour is the sensitive organ of vision; the eyelids which have a protective function; and the two optic nerves leading from the brain, through which the visual spirit runs and which intersect in the form of a cross before they terminate at the pupils.²⁰⁵ At the mention of the pupils, Peter introduces an "elegant similitudine",²⁰⁶ a biblical text attributed to David: "Custodi nos domine ut pupillam oculi".²⁰⁷

This biblical allusion marks the division between the purely scientific data and its spiritual significance. For Peter proceeds to explain that just as the pupil (part of the humor glacialis) depends on the three other humours, three

tunics and eyelids, so the pupil of the soul for its keeping depends on the seven principal virtues; and as the pupils through the optic nerves lead back to intersect in the form of a cross, so the spiritual pupil depends on the Crucifixion. It is therefore in the spiritual sense that the words of David are to be construed, and Peter now reinforces his text with an allied one from Deuteronomy describing God's treatment of Jacob: "Circumduxit eum et docuit et custodivit quasi pupillam oculi sui".²⁰⁸ Since man is the pupil of God's eye, man's own eye becomes an image of his spiritual eye, which should also be kept in good health:

In hoc ergo quae natura tanta custodia vallavit
 /carnalem/ oculum spiritualiter informamur ad
 sollicitatem custodiam /spiritualium/ oculorum:
 id est ne si negligentes fuerimus tandem
 /dolentes/ dicamus.

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Thus the failing of one virtue adversely affects spiritual perception.

In general, Peter's description of the eye and visual phenomena is less elaborate than in the first chapter of De oculo morali.²¹⁰ The second chapter begins by considering the relative hardness of the tunics of the eyes, which are then likened to the prelates of the church who should exhibit both the hard quality of justice or discipline and the soft quality of compassion.²¹¹ There follows a lengthy discussion of the justice dispensed by prelates, and their behaviour is a theme to which Peter returns in chapter six in which are moralised thirteen marvels of the eye. The second marvel describes how, if a finger is placed in front of the face and the eyes look beyond it, two fingers are seen. This is like the double moral vision of prelates who allow individuals to hold two benefices

at the same time.²¹² Thus Peter's exempla move nimbly between science and larger issues. For example, the third chapter begins:

Auctores perspective distinguunt triplicem oculi visionem. Prima est per lineas rectas. Secunda per lineas fractas. Tertia per reflexas. Quarum prima perfectior est aliis. Secunda certior quam tertia: et tertia minus certa. Modo consimili spiritualiter loquendo possumus in homine visionem triplicem assignare. Una perfecta que erit in statu glorie post resurrectionem ultimam. Alia est in anima separata a corpore usque ad resurrectionem in celo empirreo divinam essentiam contemplante et hec visio debilior est quam prima. Tertia est in hac vita: que est omnium debilissima et habet hec fieri per reflexionem sicut et visio qua aliquid videtur in speculo habet fieri mediantibus reflexis lineis, unum ab apostolo paulo vocatur visio specularis. Videmus enim nunc per speculum et in enigmate sed in gloria facie ad faciem ...

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The fourth and fifth chapters of De oculo morali moralise respectively the species emanating from the visible object and the completion of the act of vision within the brain.²¹⁴ Chapter six on the marvels of vision is subdivided into thirteen sections, dealing with such matters as perception in a misty atmosphere, binocular parallax,²¹⁵ phenomena of refraction²¹⁶ and of reflection in plane and concave mirrors, the judgement of size and the causes of variation in apparent size. Chapter seven on the twelve properties of the eye considers its physiognomy, capabilities and weaknesses. In the later sections of the book there are proportionally fewer references to perspectiva than in the earlier part and the spiritual eye is discussed sometimes to the exclusion of physiological matters. In the eighth chapter the seven distinguishing characteristics of the eye (differentii) are associated with the

seven cardinal vices. The ninth and tenth chapters deal with the covetousness and punishment of the eyes and the eleventh with the seven conditions necessary to vision. The final four chapters consider the seven properties of the eye, the four objects of contemplation of the spiritual eye, the three objects in which the eye delights and the sevenfold vision of God.

Close comparisons between the inner and outer eyes are characteristic of these exempla.²¹⁷ Peter of Limoges is highly selective in what he moralises, taking from the books on perspectiva only such items as are susceptible to moral and spiritual interpretation. If the result sometimes seems arbitrary and forced, Peter is also capable of a striking blend of physical and moral fact which hinges on the assumption that there are real analogies between physical and spiritual perception. For instance, the section in the eleventh chapter of De oculo morali headed "De informatione scholarium ex septem conditionibus quas requiruntur ad humanum visum" begins with a subtle transition from one world to another:

Ad hoc ut fiat visio completa ista septem sunt necessaria. Debita dispositio organi; presentia obiecti; proportio distantie; soliditas rei visae; attentio potentie; mora temporis; diffusio luminis; medium illustrantis. Debitam autem dispositionem oculi auferunt ista tria: tumor, pulvis et humor sic spiritualiter tumor seu prominentia superbie; pulvis avaricie; humor concretis luxurie.

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It is possible to detect the influence of De oculo morali in the works of other authors. While these may not be sermons, they demonstrate that the homiletic mode of discourse, using optics for exemplum and simile, was influential. There is a

striking congruence, for example, between the final distinction of Roger Bacon's Perspectiva (the fifth book of his Opus maius) and portions of Peter's work.²¹⁹ Bacon wishes to show how optics "sit utilis divinae veritati".²²⁰ He notes that scripture includes many references to the eye and vision. To understand fully its literal and spiritual meaning "utroque modo necessaria est haec scientia Perspectivae".²²¹ Bacon illustrates his point by using exactly the same text as that used by Peter of Limoges in the first chapter of De oculo morali: "Custodi nos domine ut pupillam oculi". The meaning of this prayer cannot be comprehended, argues Bacon, unless one knows how the keeping of the eye is physically effected. There follows an account of its physiology and its principal parts which are associated, as in Peter's work, with the seven principal virtues. Bacon then elaborates by showing that the structure of the eye also mirrors the seven gifts of the spirit, the seven petitions of the Pater noster, the eight beatitudes and the twelve apostles.²²²

In the following chapter Bacon observes that the eight conditions required for vision also have spiritual applications. For instance, just as objects can properly be perceived only at a moderate distance so a man must preserve a moderate distance from God:

... nam elongatio a Deo per infidelitatem
at multitudinem peccatorum tollit visionem
spiritualem, et nihilominus praesumptio
nimiae familiaritatis divinae, et
perscrutatio majestatis.

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These remarks are based on the eleventh chapter of De oculo morali. For his final observation Bacon comes close to direct plagiarism. Talking of the three forms of vision - direct,

reflected and refracted - he employs an identical array of material and order of presentation in showing their qualitative difference, the three-fold spiritual perception of man and the application of I. Corinthians 13:12.²²⁴

(v) Other 'exempla' collections: 'Summa praedicantium' of John Bromyard (fl.1380 - 1419)

It would be misleading to suggest that exempla collections, which proliferated in the late thirteenth and fourteenth centuries,²²⁵ always make use of scientific optics. Most of the collections which are general in scope, or based on narrative, make only passing references to visual perception and allied topics. Although the English Franciscan author of the Liber exemplorum of 1275-1279 knew Roger Bacon at Paris, he did not share Bacon's enthusiasm for optics.²²⁶ The Tabula exemplorum, another Franciscan collection from later in the same century, draws extensively on the De proprietatibus rerum of Bartholomaeus Anglicus, but not for the entries concerned with vision.²²⁷ In Bozon's fables, where the subject of vision occurs its treatment derives from the traditional attributes of animals as found in Pliny and Physiologus and not from perspectivist writings.²²⁸ Nevertheless, optics could and did make byways into the more general collections of sermon material. The preaching book of the Norfolk Franciscan John of Grimestone, compiled in 1372, contains the following lyric under the heading De colore. The qualities of whiteness which are described are to do with the visual effects of the colour:

Nota quod color albedo quatuor habet in se
condiciones
propter quas consciencie munde comparari
potest:

He taket oper coloures arith
And opere coloures sewith to mannis sith.
Hit sewith defaute to eueri with,
And openliche it sewith lith.
Est enim albedo:
Aliorum colorum optime receptiua

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The Summa praedicantium of the English Dominican, John Bromyard,²³⁰ represents the exempla collection in a late stage of development.²³¹ His work is comprehensive, lengthy and detailed; it is a widely known compilation and its contents confirm that by the mid-fourteenth century optics was well embedded in the discourses of the mendicant preachers.²³² In Summa praedicantium are accumulated many components of the moral and spiritual interpretation of perspectiva which have been noted in the works of earlier writers. In Bromyard's work there are analogies between the inner and outer eyes; a systematic use of biblical and patristic texts on vision; brief optical similitudes from optical theory; and elaborate comparisons based on a more detailed knowledge of the subject. Bromyard sometimes uses optical material to explain the work of the friars:

... in vidente ad hoc quod actus eius sit
rectus, et virtuosus requiruntur. Primo
instrumentum sanum. Secundo medium clarum.
Tertio obiectum proportionatum: ita in
visitante et accusante requiruntur ...
oculus, id est, intentio sana, et iusta ...

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Without this healthy and just intention an individual is worthy of reproach if, extracting a stalk from his brother's eye, he fails to see the beam in his own eye.²³⁴ Defective vision can also be caused by external bodies or inner infirmities:

... sicut lumen oculorum corporalium potest impediri per corpora opaca superposita, vel omnino excecari potest quis ab hostibus captus sicut Samson Iudic. 16 vel per infirmitates oculis supervenientes: ita spiritualiter potest visus impediri animae in his, quae circa seipsum facienda sunt per terrenorum sollicitudinem, et in his, quae circa alios facienda sunt per numerum acceptionem.

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Comparisons can be drawn not only between physical and spiritual defects of the eye, but also between the objects and act of vision. As the appearance of water delights the bodily eye, so spiritually the observer is reminded that man is as water and like water dissolves in the earth.²³⁶ In the act of vision, the eye leads the body and others, and so should the eye of the mind spiritually lead the whole man and lead others by word and example.²³⁷

At a somewhat more complex level, Bromyard introduces an observation on refraction and the apparent bending of a straight stick when placed in water:

... quod videlicet visum impedit duplex medium patet per exemplum de baculo recto, qui visus per medium aeris, et aquae videtur curvus et obliquus: quia licet ad ipsius visionem unum debitum concurrat medium aer videlicet, aliud tamen non debitum concurrens aqua videlicet ipsius visionem impedit. Sic in praeposito debitum medium vivendi veritatem in agendis, et iudicandis est ratio seu lex Dei ... Lex autem male intellecta, vel ad malum ducta, et subtilibus, et malitiosis cautelis mixta est medio deordinato, quod causam rectam curvat, iudiciumque pervertit et aequitatem.

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And the visual pyramid appears in an unfamiliar context:

... sicut omne quod videtur oculis corporalibus videtur sub forma piramidali, cuius conus est in oculis, et basis in re visa; ita etiam quod videtur spiritualiter in oculis fidei, ut amandum, credendum, sub praedicta forma videtur. Cuius formae unus angulus est creator in oculus fidei;

alius vero angulus quae videre debemus, est ipsa creatura, in qua videre debemus indigentes, ut subveniamus, peccatores, ut compatiamur, et corrigamus, sanctos ut sequamur. Iuxta illud Lucae 18. Vidit et sequatur.

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The preceding account of the use of optics in medieval sermons is little more than a sketch. The discussion has largely been confined to exempla collections, but no doubt a methodical study of actual sermons would reveal in more detail how perspectiva fitted into the preachers' orations.²⁴⁰ Nevertheless, the conclusions reached are probably exact in broad outline. Optics in preaching was not an obsession but it enjoyed a considerable vogue. By Chaucer's time, it was not unusual to find references to visual perception in sermons. Together with encyclopedias, they formed an important secondary route by which optical ideas travelled and gained currency. These two lines of influence ultimately derive from scholarly writings on optics. Thus it becomes possible to discern an appropriate structure of influence within which Chaucer's descriptions of the visual world can be placed and understood.

CHAPTER 3:

CHAUCER AND THE OPTICAL TRADITION I -
SCHOLARLY TEXTS, ENCYCLOPEDIAS AND SERMON 'EXEMPLA'

A. INTRODUCTION

The visual world of Chaucer's poetry is in key with contemporary interests in perception, and it ought to be possible to identify the actual or probable optical sources and influences which affected Chaucer's imagination. A broad framework of influence in the scholarly and more popular traditions of optics has now been delineated: the specialised university texts were simplified and summarised in the encyclopedias; the encyclopedias, with occasional stimuli from more learned works, provided the material for sermon exempla. This genealogy gives some impression of the extent to which Chaucer's audience might have been aware of ideas of perception as they were then understood. It is in relation to the same structure of influences that Chaucer himself must be seen.

There are marked symptoms in Chaucer's work of an eager response to the extensive interest in perception in existence in his day. These symptoms take the form of small optical details added to narrative descriptions; of lengthier passages on optical topics, inserted without precedent into narrative sources; and of a well developed metaphorical use of perceptual ideas. Such internal evidence, it will be argued, can be aligned with the three-fold pattern of optical influence hitherto described. To do so, it is first of all necessary to take into account the factors which might have governed Chaucer's access to specialised texts; his taste for Latin science; and his general use of encyclopedias and sermons. Three case-studies will then be presented, which are designed to place particular passages by Chaucer as close as possible to

analogues and possible sources in the optical tradition. By this means, it is possible to show that Chaucer responded receptively to the various channels of influence of the medieval optical tradition. It will be the burden of the companion chapter to demonstrate that the tradition also took a path through the French and Italian literature which Chaucer knew.

B. THE INFLUENCE OF SCHOLARLY TEXTS, ENCYCLOPEDIAS AND
SERMON EXEMPLA

(i) Scholarly Texts

The circumstances in which Chaucer received his education remain unknown, so it is difficult to say with any accuracy how, when and where he might have encountered specialised optical texts in Latin. If, as a child, Chaucer attended the almonry school of St Paul's, it is possible that his interest in science was first stimulated there.¹ As far as we know, Chaucer did not attend a university, the natural habitat of Alhazen's De aspectibus and similar works. That Chaucer was in contact with university culture is clear from the Miller's Tale and Reeve's Tale,² and scholar friends like Ralph Strode³ might have been able to lend him texts on perspectiva. A tradition beginning in the sixteenth century favours the idea that, during the largely undocumented years of 1360-1366, Chaucer attended the Inns of Court.⁴ His attendance there has never been substantiated,⁵ but the Inns of Court comprise another setting where specialised optical texts may have been in circulation. In the fifteenth century, they functioned as "a sort of London University",⁶ secular institutions providing a general education beyond grammar school level. It is not yet clear whether or not they had the same purpose in the mid-fourteenth century. Alternatively, Chaucer may have received his education at court.⁷ Chaucer's use of books from the libraries of wealthy private individuals is as conjectural as the nature and extent of his contact with institutional collections.⁸

Chaucer's interest in Latin texts is shown by the extensive

use he makes of them in his own writings.⁹ Among classical works he knew, if in fragmentary redactions, are Statius' Thebaid; Juvenal's Satires; Cicero's Somnium Scipionis with the commentary of Macrobius; and, more extensively, Virgil's Aeneid and Ovid's Metamorphoses, the second of which he supplemented with the Ovide moralisée.¹⁰ Notable medieval Latin works which influenced Chaucer include Boethius' Consolatio philosophiae;¹¹ Bernard Silvestris' De mundi universitate;¹² Alan of Lille's De planctu naturae and Anticlaudianus; Geoffrey of Vinsauf's Poetria nova; Joseph of Exeter's Frigii Daretis Ylias; and the Disticha Catonis.¹³ There are also a number of ecclesiastical works from which Chaucer adapted material as occasion demanded, such as Jerome's Epistola adversus Jovinianum;¹⁴ Robert Holcöt's Super sapientiam Salomonis;¹⁵ and texts related to the Summa of St. Raymund of Pennaforte and the Summa vitiorum of Guilielmus Peraldus.¹⁶ The range of Latin texts known to Chaucer, as well as the subtle uses to which he puts them, suggest that his working knowledge of the language was of a high order,¹⁷ even if he shows a tendency to mistranslate and, as for example in the Clerk's Tale and Boece, to rely heavily on French versions of the Latin original.¹⁸ The conclusion to be drawn is that Chaucer would have had no hesitation in tackling a medieval Latin text on perspectiva. If the language of scientific treatises was of a technical nature, the syntax, which takes pains to avoid ambiguity, is less difficult than that of more 'literary' works. Ample proof of Chaucer's appetite for Latin science is provided by his own Treatise on the Astrolabe, deriving from a Latin version of an Arabic work on the subject and from John of Sacrobosco's De sphaera.¹⁹ If.

nothing shows conclusively that Chaucer mastered perspectiva in its undiluted form, there is no reason in principle why he should not have done so.

(ii) Encyclopedias

The predigested data provided by encyclopedias does not sufficiently account for Chaucer's general treatment of perception, but it can be seen as a source of stimulation on a poet interested in optical matters. That Chaucer used encyclopedias is clear from other evidence. In a series of articles, Pauline Aiken demonstrated that Chaucer made extensive use of the Speculum maius of Vincent of Beauvais, turning to it time and again as a convenient compilation of scientific lore.²⁰

It is the basis for the account of Arcite's illness in the Knight's Tale;²¹ the display of alchemical learning in the Canon's Yeoman's Tale;²² the medical practices of the Doctour of Phisik;²³ Pertelote's medical knowledge;²⁴ the Summoner's skin disease;²⁵ and the demonology of the Friar's Tale.²⁶ It is not clear whether Chaucer also used the other great encyclopedia of the period, the De proprietatibus rerum of Bartholomaeus.²⁷

The Latin text had been available since the mid-thirteenth century, but Trevisa's English translation did not appear until 1398, too late to be of much use to the English poet. However, there had existed a French translation by Corbéchon since 1392, to which Chaucer may have been drawn.

The treatment of perception in encyclopedias like the Speculum maius and De proprietatibus rerum is built up on a mass of physical data. One way in which they are likely to have affected Chaucer's account of perception is in matters of concrete

detail. Although no direct relationship can be shown, it is an encyclopedic frame of reference that is evoked by the small perceptual items which Chaucer sometimes inserts into his poetry. Theseus out hunting looks "Under the sonne" (KnT, I.1697) and glimpses the distant flashing of bright swords, but has to approach nearer - "But what they were, no thyng he ne woot" (KnT, I.1703) - before he can discern the two knights, Palamon and Arcite. Dorigen's wistful gazing over the sea in the Franklin's Tale has as its focus "many a ship and barge ... Seillynge hir cours, where as hem liste go" (FrankT, V.850-51). Before he sees the fox, Chauntecleer's visual attention is caught by a butterfly:

And so bifel that, as he caste his ye
Among the wortes on a boterflye,
He was war of this fox, that lay ful lowe.

(NPT, VII.3273-75)

Such details, small in themselves, reveal an interest in the psychology of perception that may well have been fed from encyclopedic sources.

(iii) Sermons

Six of the Canterbury pilgrims - the Monk, Friar, Clerk, Parson, Pardoner and Nun's Priest - could have claimed a professional acquaintance with the art of preaching. Even Oswald the Reeve, as Harry Bailly remarks, is a preacher manqué (CT, I.3903).²⁸ The Friar is quick to recognise that the Wife of Bath's mode of address has much in common with the sermon (FrP, III.1270-77); while the Pardoner's Prologue and Tale,²⁹ Nun's Priest's Tale,³⁰ and Parson's Tale³¹ have all been recognised as sermons, if somewhat unconvincingly in the last case. Exempla, as might

be expected, occur frequently in these works, but they are also present in a wider range of poems, such as the Friar's Tale,³² Summoner's Tale³³ and Franklin's Tale.³⁴ Although the exemplum was not restricted to sermons - it was a rhetorical device in general use³⁵ - the contexts in which Chaucer employs it reveals that a major channel of influence, as far as he was concerned, was the medieval sermon.³⁶

In the case of Chaucer's knowledge of optical exempla, it is possible to point to a likely source. It has already been noted that he was acquainted with Robert Holcot's Super sapientiam Salomonis.³⁷ Robert Holcot (fl. 1332-1349) was a Dominican friar who lectured at Oxford and Northampton and whose commentary on Sapientia, written about 1333, was possessed by "Every well-stocked library".³⁸ Among the sources of his commentary, which takes the form of a series of lectures, are Vincent of Beauvais, Grosseteste and Euclid.³⁹ Holcot, as Smalley has observed, thinks "in terms of sight rather than of sound",⁴⁰ and regularly describes in vivid detail instructive paintings or pictures.⁴¹ His visual interests are also manifest in the exempla to which he resorts in the course of his lectures.⁴² For instance, Holcot draws a moral from the ability of a man, placed in the bottom of a well at midday, to see the stars:

... ille qui est in profundo puteo circa meridiem videt stellas, ubi ille qui stat in superficie terrae in lumine nullam videt stellam. Eodem modo ille qui ponitur in profundo humiliationis, tribulationis et angustie suspirat ad coelum, et clamat ad Deum: qui vero stat in lumine mundi et claritate mundanae conversationis et lascivie stellas videre non potest.

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He goes on to describe an experiment, previously used by Neckam,

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in which a penny is placed at the bottom of a bowl, just out of sight. When water is added, the coin becomes visible. Once again, external sight has spiritual application: the penny designates eternal life, which is hidden to those distanced from God by earthly pride and pleasure. If tried by sickness, tribulation or persecution, however, then they remember God and heaven.⁴⁵ In the course of the following case-studies, the attraction of such material to Chaucer will become clear.

C. CASE-STUDIES

(i) 'Merchant's Tale', IV.2396-411

At the end of the Merchant's Tale, Pluto restores the sight of January, "And made hym se as wel as evere he myghte" (MerT, IV. 2356). The thoughts of the jealous knight turn immediately to the whereabouts of his wife, and he looks into the pear tree into which he has just helped her to climb. Trusting instinctively to the evidence of his eyes, January roars and rages at the first sight which greets him, his wife in flagrante delicto with Damian, his squire:

Up to the tree he caste his eyen two,
And saugh that Damyan his wyf had dressed
In swich manere it may nat been expressed ...

(MerT, IV.2360-62)

Unabashed, May proceeds to talk her way out of an extremely compromising situation, as Proserpina had promised that she would do. May's first tactic is to claim that her intentions were good: she was putting into effect a 'cure' for her husband's blindness, to which end she had been told to "struggle with a man upon a tree" (MerT, IV.2374). January objects to his wife's terminology and again appeals to the veracity of what he has seen:

"Struggle!" quod he, "ye algate in it wente!
God yeve yow bothe on shames deth to dyen!
He swyved thee, I saugh it with myn yen,
And elles be I hanged by the hals!"

(MerT, IV.2376-79)

May is unmoved. Her remedy, she says, must be suspect if January really thinks that that is what he saw: "Ye han som glymsyng, and no parfit sighte" (MerT, IV.2383). Doubt begins to creep into January's version of events:

"I se," quod he, "as wel as evere I myghte,
Thonked be God! with bothe myne eyen two,
And by my trouthe, me thoughte he dide thee so."

(MerT, IV.2384-86)

May counters with the view that such misapprehensions are the result of January's dazed condition: "Ye maze,^{maze,} goode sire" (MerT, IV.2387).

A conciliatory note now creeps into January's voice as he urges his wife to descend, conceding as he does so that he may have misconstrued what he saw. The alarming memory of Damian coupling with May has not left him, but is now relegated from objective truth to imagined event, while preserving its disturbing detail:

... by my fader soule, I wende han seyn
How that this Damyan hadde by thee leyn,
And that thy smok hadde leyn upon his brest.

(MerT, IV.2393-95)

May seizes her chance and takes full advantage of January's failing hold on reality to drive home the causes of his 'visual deception'. In doing so, she presents a scientific explanation of January's experience, an explanation which in its appeal to rational causes neatly conceals the true, irrational basis of January's acceptance of May's argument. January, as the body of the Tale demonstrates, suffers from a severe inner blindness which by this stage in the story even affects the reliability of his own eyes. January is willing to believe May because he desires her and dotes on her. May's parting shot, "He that mysconceveh, he mysdemeth" (MerT, IV.2410) sums up January's condition:

"Ye, sire," quod she, "ye may wene as yow lest.
But, sire, a man that waketh out of his sleep,
He may nat sodeynly wel taken keep
Upon a thyng, ne seen it parfitly,
Til that he be adawed verraily.
Right so a man that longe hath blynd ybe,
Ne may nat sodeynly so wel yse,

First whan his sighte is newe come ageyn,
 As he that hath a day or two yseyn.
 Til that youre sighte ysatled be a while,
 Ther may ful many a sighte yow bigile.
 Beth war, I prey yow; for, by hevne kyng,
 Ful many a man weneth to seen a thyng,
 And it is al another than it semeth.
 He that mysconceveeth, he mysdemeth."
 And with that word she leep doun fro the tree.

(MerT, IV.2396-411)

The analogues for this episode in the Merchant's Tale account for the miraculous restoration of January's sight and for May's claim that her behaviour in the tree is a cure for blindness. They offer no parallels for the subsequent discussion.⁴⁶ Such parallels can be found in optical texts. The third book of Alhazen's De aspectibus and the fourth of Witelo's Perspectiva are both devoted to the circumstances, causes and types of visual deception. Alhazen recognises that weak vision is a significant cause of error. It can affect the correct estimation of distance, position, size, shape, separation, continuity and number:

Visus debilitas et immoderatio errorem invehit singulis per syllogismum in visu comprehensis. In longitudine. Si enim opponantur visui duo corpora, quorum unum sit coloris fortis, et remotius, aliud coloris debilis, et oculo propinquius; cum non fiat comprehensio longitudinis, nisi facta collatione ad aliqua corpora interiecta ... faciet incertam collationem debilitas visus. Et quia certum est homini, quod ex locis propinquioribus certior fit fides visui, quam ex remotioribus, concludit illud, quod apparet ei certius ex his corporibus esse propinquius ... In situ errat visus debilitas. Si enim ab aliquanta longitudine, licet temperata declinetur corpus, et sit modica declinatio, ignorabitur, cum plene comprehenditur longitudo. Et incertitudo longitudinis quantitatis, errorem etiam situs ingerit. In figura. Quia gibbus modicus, et multiplex angulus latent debilitatem visus. Et si in corpore linea nigra fuerit, aestimabitur divisio vel fissura; et aestimabuntur corpora contigua, unum continuum. Unde error in divisione, continue, numero.

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Witelo makes similar observations in his treatise,⁴⁸ and also points out that a weak eye takes longer than a normal, healthy eye to register visual events.⁴⁹ In a later chapter, he describes the various causes of a discrepancy which may arise between what the eye expects to see and what in fact it does see. It is this sort of dislocation of actual and imagined sights that May exploits so well:

Cum enim res alia aut alterius speciei visui apparet quam sit in rei veritate, tunc fit error via scientiae in visu; quoniam forma quiescens in anima inconvenienter alteri rei applicatur, cui non convenit ... 50

Witelo ends by noting how weakness of vision can increase the margin of error, giving rise to cases of mistaken identity:

Debilitas quoque visus huius erroris est causa, laesus enim visus a colore forti, cui incidit lumen forte, iudicat omnem colorem visum illius coloris, vel alterius coloris ex illis duobus mixti; et etiam propter oculorum aegritudinem aliquando equus apparet asinus, et Socrates videtur Plato. 51

Or, we might add, a love-making Damian appears to be a struggling man.

The encyclopedias provide a more detailed context for the passage under discussion. In his Speculum naturale, Vincent of Beauvais identifies three causes of defective vision like those which, according to May, afflict January so that he has "som glymsyng, and no parfit sighte" (MerT, IV.2383). These are: staring too long at an object of extreme brightness or whiteness;⁵² waking suddenly from sleep;⁵³ and opening the eyes after a prolonged period with them closed or in darkness, a circumstance close to January's as he stares amazed into the pear tree:

... contigit cum aliquis diu clausos habuit vel in tenebris fuit, et postea subito ad lumen vadit, quod non bene videt, antequam ingrediatur lumen temperate immutans ab extrinseco. Quia vero iterum visus perficitur spiritu visibili, qui defertur ad oculos per nervos opticos et concavos ab interiori parte cerebri, qui scilicet spiritus secum trahit colorem temperatum.

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There are more deep-seated causes of defective vision and blindness, however, to which Bartholomaeus Anglicus draws attention at some length.⁵⁵ With De proprietatibus rerum to hand, it is possible to recognise the syndrome in January. He is over sixty when the action of the Merchant's Tale begins (MerT, IV. 1252); he is a bon viveur, as the wedding feast shows, when the table is full of "vitaille, / The mooste deyntevous of al Ytaille" (MerT, IV.1713-14); and throughout his life he has given immoderate attention to other sorts of dishes,

And folwed ay his bodily delyt
On wommen, ther as was his appetyt ...

(MerT, IV.1249-50)

On each of these three counts, according to Bartholomaeus, a man is likely to suffer partial or complete loss of vision. A declining vitality in the humours causes blindness in old age:

Aliquando sit caecitas propter humorum et spirituum consumptionem, ut est videre in senibus, quorum oculi primo caligant et defectum visus patiuntur.

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Food and drink may affect vision intermittently:

... si defectus accidat ex fumositatem stomachi, defectus visus non est continuus sed interpolatus, secundum enim ciborum assumptorum varietatem minuitur vel augetur.

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As for lechery, particular parts of the eye suffer

... a venerea voluptate consueta spiritum et humorem crystallinum corrumpente et dissolvente, aliquando ab interioribus vel ab humoribus calidis vel frigidis, siccis vel humidis.

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January's reaction to blindness is one of possessive jealousy of May, "Lest that his wyf sholde falle in some folye" (MerT, IV. 2074). Bartholomaeus warns that blindness is a wretched state, and causes emotional disturbance. The blind man lives in doubt and dread. He can be sure of nothing and fears desertion by his friends, a fear that in January's case is fully justified:

... semper fere dubius et timens erit
... est miser caecus, quia in domo
nihil audet fiducialiter agere, in itinere
deferri a socio multum timet. 59

Bartholomaeus ends on a moral note. He asserts that it is better to be blind than to have eyes and be deceived:

Melius autem est homini oculis erutis caecum
fieri, quam habere oculos, et eorum blanditiis
decipi et abduci ... 60

The narrator of the Merchant's Tale makes the identical, highly appropriate, point:

O Januarie, what myghte it thee availle,
Thogh thou myghte se as fer as shippes saille?
For as good is blynd deceyved be
As to be deceyved whan a man may se.
(MerT, IV.2107-10)

What is remarkable about Chaucer's treatment of blindness in the Merchant's Tale is the extent to which it is presented not merely as a fact of January's life, but as a carefully developed metaphor for his inner condition. It is appropriate here to remember the stress placed on the connections between inner and outer vision in sermon literature. It is the essence of the sermon exemplum to direct attention to the spiritual meaning of events or facts and it is likely that Chaucer's knowledge of sermon literature affected his use of this metaphor.⁶¹

One lectio in Holcot's Super sapientiam Salomonis is specifically concerned with inner and outer blindness of the kind

explored by Chaucer in the Merchant's Tale. It relates each of the seven cardinal sins to both the spiritual and physical blindness which they cause:

... septem vitia capitalia septem inferunt
caecitates mortales, quibus correspondent
caecitates corporales, quae in Sacra scriptura
nominantur.

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Holcot begins with Pride, which blinds "sui nimia claritate".⁶³

The sun is compared to the display of worldly glory, which prevents the eyes from seeing spiritual truth by its excessive splendour,

and the story of Saul's blindness is cited (Acts 9: 8). Men rich

in gifts of fortune and nature, "ingeniosi speciosi, fortes et

divites",⁶⁴ are likely to be affected by this sin. One is

reminded of the rich, powerful and ingenious ruler of Pavye, and

forcibly so as Holcot goes on to quote from a letter by Seneca to

Lucilius⁶⁵ a story similar in moral to that of the Merchant's Tale:

... uxor sua quandam famulam habuit, quae
subito facta caeca, videre desiit.
Incredibilem rem tibi narro, sed veram:
nescit se esse caecam, sed semper rogavit
paedagogum suum ut recedat de domo in qua
est. Dicit enim domum tenebrosam esse.
Et subdit Seneca: Hoc enim quod in illa
videmus, nobis accidit: nemo se avarum
esse intelligit, nemo cupidum. Caeci
ducem quaerunt, nos sine duce eramus, et
dicimus: Non ego ambitiosus sum, sed urbs
mea magnas exigit impensas: non est meum
vitium quod iracundus sum: quia nondum
constitui certum genus vitae: adolescentia
facit. Quid nos ipsos decipimus. Non est
extrinsecum malum nostrum, intra nos est,
in visceribus sedet. Et ideo difficulter
ad sanitatem pervenimus: quia nos aegrotare
nescimus.

66

Like the servant of Seneca's wife, January does not know himself to be blind. Intellectual blindness enables him to believe that a lifetime of lechery can be continued and sanctified in marriage, providing a paradise on earth as well as one in heaven; lust blinds him to all but the fulfilment of sexual fantasy in his

choice of a mate; and doting possessiveness blinds him to the fact that May is conducting an affair with his squire. Seneca's moral applies to January: the cause of blindness is within. When January becomes physically blind, it is but the external manifestation of internal disorders. He is never more blind than when his sight is restored and May is able to persuade her husband that his eyes do not see the truth. They do, but January does not know what the truth is. Outer and inner blindness have become one.

Whatever the precise source or stimulus of Chaucer's insertion of optical material in the Merchant's Tale, he uses his scientific authority in a way familiar from other contexts in the Canterbury Tales. Chaucer places the statement of scientific fact in the mouth of a biased individual so that its objectivity is undermined. May's final statement may be generally accurate, but it is not applicable to the case of January, who has seen things all too clearly. May uses ideas of deceptive vision to blind January to her own deceptiveness. It is, on Chaucer's part, an appropriate, ironic and self-questioning use of one aspect of visual theory. Scientific truth is used to support a lie, much as the Wife of Bath uses scriptural authority to support her lack of orthodoxy.

(ii) 'Reeve's Tale', I.4296-306⁶⁷

In the Reeve's Tale, the pattern of relations between poetry, scientific text, encyclopedia and sermon is repeated. After Symkyn has discovered that his two guests have spent the night with his wife and daughter, he lays violent hands on Aleyne. To help her husband win the fight, the miller's wife takes hold of a

staff, intending to hit the student. But light in the room is bad:

... by the wal a staf she foond anon,
And saugh a litel shymeryng of a light,
For at an hole in shoon the moone bright;
And by that light she saugh hem bothe two,
But sikerly she nyste who was who,
But as she saugh a whit thing in hir ye.
And whan she gan this white thyng espye,
She wende the clerk hadde wered a volupeer,
And with the staf she drow ay neer and neer,
And wende han hit this Aleyn at the fulle,
And smoot the millere on the pyled skulle ...

(RT, I.4296-306)

This description of a visual error again does not derive from a literary source: it is Chaucer's invention.⁶⁸ His account includes a close attention to the physical and psychological causes of deception: the light of the moon is weak; the two figures cannot be properly discerned; the woman has the impression of a white object but misidentifies it as Aleyn's nightcap when in fact it is the white light of the moon reflecting on her husband's bald skull.

Alhazen discusses similar cases of visual error. They fall into three types: errors caused by physical circumstances like failing light or excessive distance; errors of recognition; and errors of interpretation. Under the first category, for example Alhazen considers how very weak light can conceal details from the eye, a multi-coloured object seeming to consist of a single dark colour.⁶⁹ Under errors of recognition, he describes how at twilight it is difficult to identify forms like animals or trees, whether there be two or three or of one kind or another.⁷⁰ Under the third category, errors of interpretation, he suggests in one instance that at a distance black portions in a white body, such as a wall, are assumed to be apertures.⁷¹ Witelo, continuing

and elaborating Alhazen's observations, writes:

Ex paucitate enim lucis error accidit in visione similitudinis et diversitatis corporum eiusdem coloris secundum speciem, vel eiusdem figurae secundum speciem, in quibus partialis diversitas per latentia signa distincta est; tunc enim illa in luce debili non videntur, et ob hoc inter illa corpora omnimoda indicabitur similitudo. 72

It would hardly have been much comfort to Symkyn to hear that his wife's painful mistake was all a matter of detail.

The passages from the Merchant's Tale and Reeve's Tale deal with similar cases. Both January and Symkyn's wife open their eyes only to commit a visual error. Vincent of Beauvais explains how this can happen to someone who, like Symkyn's wife, has just awoken suddenly:

... contigit, quod post somnum in quo spiritus omnes ad interiora moventur ad locum digestionis relinquendo sensuum organa exteriora, statim aperiens oculos non bene videt ante reditum spirituum et caloris ab interioribus ad exteriora organa sensuum. 73

Vincent goes on to note some of the characteristics of night vision, which are similar to those existing at the end of the Reeve's Tale. "Ille qui est in obscuro videt eum qui est in splendido"⁷⁴ might apply to the sight of Symkyn in the light of the moon; and "corpora luminosa vel noctiluca obiecta sunt visus in tenebris"⁷⁵ to his shiny pate. Night vision in animals is discussed, as it is in Bartholomaeus.⁷⁶ In relation to the subject of blindness, Bartholomaeus describes what it is like to be deprived of sight. The details are reminiscent of Symkyn's wife groping for a staff:

... et contrectando manus dirigit, undique de itinere dubius, manu et baculo viam quaerit, raro aliquid securus agit ... 77

Visual deception is a subject favoured in sermon exempla because it is easily susceptible to moral interpretation: the eye which sees imperfectly is like the man perverted by sin. Robert Holcot again provides an instance of this use of optical material. In the following exemplum, three types of visual error are used to categorize three misconceptions of the after-life caused by sin, which distances man from heaven. The cause of the errors is excessive distance rather than poor light, but the effects are similar to those experienced by Symkyn's wife: deceptive colours, uncertain shapes, misleading objects. Although basing his illustration on a patristic source,⁷⁸ Holcot also displays a knowledge of Euclid's De visu:⁷⁹

Dicit enim Basilius quod nimia distantia facit errare circa tria, videlicet quantitatem, qualitatem, et circa figuram. Circa quantitatem secundum Basilius, et ponit exemplum de Sole, qui propter nimiam distantiam a nobis apparet vix pedalis quantitatis in diametro. Circa qualitatem, etc. Et ponit exemplum de velis navium, quae cum sint alba, apparent multis distantibus esse nigra. Erratur etiam circa figuram, propter distantiam, etc. Et ponit exemplum de turribus quae cum sint quadratae propter nimiam distantiam, apparent esse rotundae. Unde autor de visu propositione 10. Rectangulae magnitudines magna distantia visae parifariae apparent. Ubi habet alia translatio: Sicut quadra per distantiam longam visa rotunda apparent. Ratio est, quia in magna distantia anguli quadrati non immutant sensum: quia cuiuslibet visibilis per improportionatum distantiam, sive per elongationem visum terminari contigit, sicut dicitur propositione tertia eiusdem libri. Isto modo peccatores elongati a coelestibus errant circa futuram gloriam tripliciter: qua circa eius quantitatem, non considerantes quam magna est multitudo dulcedinis tuae Domine, etc. Circa eius qualitatem, non considerantes: qua nec auris audivit nec in cor hominis ascendit gloria, qua Deus se diligentibus praeparavit: Circa eius figuram non considerantes: quam stabilis sit et aeterna. Est enim in quadro posita: sicut dicitur Apoc.²¹ 167. Ipsi autem credunt eam esse rotundam: id est, volubilem et caducam.

(iii) 'Book of the Duchess', 321-31 and 335-38

The third instance of Chaucer's use of material which may derive from optical sources occurs in the Book of the Duchess when the narrator, after a period of insomnia, falls asleep and dreams that his bed-chamber is transformed into a paradise of music and art. The windows are all set with painted glass, through which the sun streams. Again, the incident is not found in the established sources.⁸¹

And sooth to seyn, my chambre was
Ful wel depeynted, and with glas
Were al the wyndowes wel yglased,
Ful clere, and nat an hoole ycrased,
That to beholde hyt was gret joye.
For holly al the story of Troye
Was in the glasyng ywroght thus,
Of Ector and of kyng Priamus,
Of Achilles and Lamedon,
And eke of Medea and of Jason,
Of Paris, Eleyne, and of Lavyne ...
My wyndowes were shette echon,
And throgh the glas the sonne shon
Upon my bed with bryghte bemes,
With many glade gilde stremes ...

(BD, 321-31 and 335-38)

In his De multiplicatione specierum, Roger Bacon explains how forms consisting of light and colour are propagated by objects. Just as hot things generate heat, so a visible object generates a species through which its form is transmitted along straight lines in all directions. The species is received by an eye placed in the appropriate position. The theory is derived from Alkindi, Alhazen and Grosseteste.⁸² In order to make clear precisely what a visual species is, Bacon uses the analogy of light passing through coloured glass:

... quando aspicimus radios penetrantes vitra bene colorata, videmus in opaco juxta vitrum colorem sensibilem qui visum immutat per se et sensibiliter, et tamen scimus quod est species et similitudo coloris vitri.

83

Thus the colours projected, say, on to the floor are the species of the coloured glass, but nonetheless capable of affecting the eye of their own account.

The situation in the Book of the Duchess parallels Roger Bacon's description of the visual species, except that Chaucer is not talking about the projection of colour but about the projection of scenes represented in outline on clear glass, through which the golden beams of the sun shine; and he gives the subjects of those scenes which are cast on the dreamer's bed. Of course there is not sufficient evidence here to prove that Chaucer knew Bacon's work, and the apparent closeness of treatise and poem at this point may be nothing more than coincidence. The effect produced by light passing through glass is susceptible to simple observation, whether by scientist or poet. For all that, Chaucer appears to have grasped, by one means or another, the principle to which Bacon refers.⁸⁴

Two factors suggest that Chaucer had more than a purely experiential view of the effects of light through glass. The first is that in the Book of the Duchess, the light rays pass through scenes of the story of Troy to fall on the recumbent dreamer. Chaucer may be thought of as expressing visually, in a particularly vivid way, the 'influence' and importance of the matter of Troy in his own work. Here it is, literally projected on to his alter ego, as it was figuratively to be projected into his later work, Troilus and Criseyde. The whole notion of literary influence, as it is represented here, rests on the same conception as that used by Bacon: that the glass - the matter of Troy - produces its own species or effect which, while its source is in one place, has its own sensible

consequences elsewhere, on contingent objects or on susceptible poets.⁸⁵ So Chaucer would seem to have based his image on a sure grasp of its scientific meaning, exploiting the scientific context for his own metaphorical and artistic ends, as he did in the Merchant's Tale.

The second factor is that in his Opus maius, Bacon describes a theory about the transmission of visual forms according to which the first species produced by an object in the air immediately adjacent to it gives rise to a second species, the second to a third and so on in a process of multiplication:

Sed species non est corpus, neque mutatur secundum se totam ab uno loco in alium, sed illa quae in prima parte aeris fit non separatur ab illa, cum forma non potest separari a materia in qua est, nisi sit anima, sed facit sibi simile in secundam partem, et sic ultra. Et ideo non est motus localis, sed est generatio multiplicata per diversas partes medii; nec est corpus quod ibi generatur, sed forma corporalis non habens tamen dimensiones per se, sed fit sub dimensionibus aeris ...

86

The theory is not limited to vision - it embraces the other senses as well⁸⁷ - and in the House of Fame (HF, 782-822), Chaucer has an authoritative eagle explain how sound is produced precisely by this method of "multiplicacioun".⁸⁸ It is, he says, like dropping a stone into water. A circular ripple is produced which generates a second, larger circle and so on until the edge of the pool is reached. In the same way sound waves multiply until they reach the celestial House of Fame. That Chaucer should display a knowledge of the way in which a species is transmitted suggests that he may have known the scientific texts well enough to have derived from them his idea based on the behaviour of light through glass.

The preceding case-studies, in which Chaucer displays a considerable awareness of optical phenomena, indicate the related interests of poem, scholarly text, encyclopedia and sermon exemplum. The texts of the optical tradition have been used to provide a contextual commentary, but without extensive verbal similarities it is not possible to say categorically that such texts were used by Chaucer as direct sources. There remains a tantalising gap between the two types of writing: lines closely parallel but not converging. Of course, it is not necessary to postulate that Chaucer needed to have read a treatise on optics, or a passage from an encyclopedia, or an exemplum, in order to make observations on the causes of blindness, the deceptiveness of weak vision, the consequences of bad light, or the effect of sun shining through glass. But it is reasonable to suppose that his interest in such matters was fed and stimulated by the knowledge which he did have, either by direct or indirect channels, of such scientific speculation. In the cases of Vincent of Beauvais and Robert Holcot, whose works Chaucer is known to have used, it is difficult to escape the conclusion that they were partly the means by which his work was directly influenced by the optical tradition.

It is worth remembering that Chaucer was not alone or eccentric in his curiosity about optical phenomena. There is a marked similarity, for instance, between Chaucer's interests and those found under discussion in scholarly circles in the second half of the fourteenth century. Nicole Oresme's Quaestiones super quatuor libros meteorum is a case in point. The work was compiled between 1351 and 1353 and is known to exist in fifteen manuscripts dating from 1366 to 1470.⁸⁹ Among the topics

mentioned by Oresme are the causes of weak vision and deception; the consequences of darkness; the effect of light reflecting from white bodies; the appearance of light shining through glass; and the similarity between the propagation of light and the propagation of sound. He notes how passionate love can give rise to optical illusions, as it does in the Merchant's Tale:

... in sompnis apparet hominibus quod
aliquid videant, licet tamen nihil videant.
Sic etiam accidit vigilantibus, freneticis,
et aliis habentibus amorem ereum qui fortiter
ymaginantur de sua amica et credunt eam
videre quando tamen non vident. 90

Oresme describes a monochrome world of darkness like that of the miller's bed-chamber:

... in tenebris non videmus colorem; ex hoc
tunc oportet ulterius dicere quod in tenebris
homo vel aliud corpus non esset coloratum ... 91

and observes how light reflects from objects such as Symkyn's head:

... lux potest videre pure ... reflexe sicut
si aliquis videret lucem per reflectionem
luminis super aliquo polito et terso
insensibiliter colorato. 92

The light of the sun is described shining through glass, as it does in the Book of the Duchess, projecting its rays on to opaque forms:

... lux potest videre impure ... reflexe
sicut si lumen solis transiens per vitrum
reflecteretur super aliquo corpore opaco
retro vitrum et econverso reflecteretur ad
visum, sicut solet fieri cum vitrum plenum
aqua ponitur ad radios solares. Tunc si
retro vitrum in umbra vitri ponatur manus,
in manu apparent colores yridis ... 93

And the diffusion of light and sound is seen to be essentially the same:

... non oporteret nos habere scientiam
specialem de reflexione specierum soni vel
odoris, quia per scientiam quam haberemus
de reflexione speciei lucis vel coloris,
possemus devenire in cognitionem
reflexionis speciei soni vel odoris.

94

In the following chapter it will be shown that Chaucer's
interests were also shared by some of the continental poets
who most influenced his own work.

CHAPTER 4:

CHAUCER AND THE OPTICAL TRADITION II -

FRENCH AND ITALIAN LITERATURE

A. INTRODUCTION

The structure of optical influences so far described in relation to Chaucer still lacks one component: European vernacular literature. The French and Italian poetry which Chaucer best knew forms a significant fourth line of transmission through which perceptual ideas were communicated to the English poet. It is the purpose of the present chapter to give some account of the importance of French and Italian literature to Chaucer and his audience; then to analyse the various types of optical content possessed by those works familiar to Chaucer; and finally, to assess the impact of that content on his own work. It is usual to think of the French and Italian sources as interlocking in a crucial way with Chaucer's poetry. In this more familiar territory, it ought not to be forgotten that Chaucer's handling of optical material cannot be accounted for solely in terms of his relations with European literature. French and Italian poets added in their own, considerably important, ways to the network of influences previously examined. It remained for Chaucer to fabricate a distinctive design from the various strands of the optical tradition available to him.

B. THE INFLUENCE OF FRENCH POETRY

(i) Historical Background

The literary sensibilities of Chaucer and his audience were formed by French poetry.¹ The Anglo-Norman heritage was not seriously challenged until the mid-fourteenth century, when English began to compete with French as a language of status.² Until then, Anglo-Norman was widely used in monastic circles, in education, at court, in government, in law and in administration. It was the language of a thriving literature and a vigorous vernacular at various levels of society.³ After mid-century, it continued to be useful in diplomacy and as a common language in a country of diverse dialects, while French poetry still enjoyed a clerical and aristocratic audience.⁴

Chaucer had first hand experience of France. He was taken prisoner there and undertook a number of diplomatic missions which took him to or through the country.⁵ He was thoroughly familiar with the French language, and was more at home with it than either Latin or Italian.⁶ At this transitional stage of the English and French languages it was an innovation for a poet to compose his entire oeuvre in English.⁷ In court circles, the language of poetic composition could still be French and Latin, as the case of Gower (d.1408) illustrates.⁸ What is certain is that Chaucer and his bilingual audience, whether in the larger court forum or in a narrower circle like that of the Lollard knights,⁹ shared a common cultural and poetic inheritance through the medium of French poetry.

It hardly needs to be said that the traditions of French poetry exerted a powerful influence on Chaucer throughout his

poetic career, although the nature of that influence underwent changes.¹⁰ French poetry affected Chaucer's sense of the literary uses of visual perception in three ways. In the first place, it provided him with an account of the conventional importance of vision in the experience of erotic love. Here, the most significant work is the first part of the Roman de la rose, by Guillaume de Lorris, imitated and elaborated by the French love-poets of the fourteenth century. Secondly, French poetry demonstrated how scientific optics could be incorporated into poetry both as a subject of interest in its own right, and as a means of providing the work with a significant structure. The second part of the Roman de la rose, by Jean de Meun, is of most importance in this connection. Finally, the vein of realism apparent in French poetry and especially in the fabliaux, presented Chaucer with a precedent for paying attention to the idiosyncratic particularities of things, people and places. The influence of the fabliaux will be considered in a later chapter. I propose now to examine briefly the attitudes to perception in the Roman de la rose and in some of the French love poetry known to Chaucer.

(ii) Guillaume de Lorris, 'Le Roman de la rose'

The first part of the Roman de la rose was written by Guillaume de Lorris (c.1212-c.1237) between 1230 and 1235. Acts of seeing feature prominently, especially in the earlier passages as Amant, the dreamer-narrator, is taking the first steps in his love adventure. This characteristic is appropriate to a dream vision, in which the various episodes are represented in terms of the personal experience of the narrator:

... je ...

... me dormoie mout forment;
 Si vi un songe en mon dormant
 Qui mout fu biaux e mout me plot ...
 (RR, 24-27)¹¹

The emphasis on visual experience is too insistent to be exclusively ascribed to aesthetic propriety. In the first place, it is a consequence of the allegorical mode in which Guillaume writes. He depicts an entire gallery of personifications. For example, there is Povreté, "nue comme vers" (RR, 445), shivering in a patched sack and inimical to Amor, from whose garden she is excluded, because the successful pursuit of love requires money with which to buy presents and effect bribes.¹² There is the seductive Oiseuse with flesh "plus tendre qu'uns poucins" (RR, 528), leading a carefree life and representing that idleness which is necessary to enter into a love affair. And there is, within the garden, Dedit, the presiding genius, whose health, elegance, grace and rich, fashionable clothes express the prevailing principle of sensual enjoyment (RR, 801-30). The wealth of iconographic detail gives to Guillaume's poem an extraordinary visual intensity. The mind of the reader is constantly engaged in imagining and interpreting the personification before him, as a necessary preliminary to understanding the animating ideas of the poem.

In the second place, as Gunn has remarked, the visual experiences of the narrator are linked "in a causal chain",¹³ suggesting that sight itself plays an important part in the progress of erotic love. As a result of seeing the garden, Amant sees and describes the sculptures which surround it (RR, 129-496). He is thereby prompted to attempt entry and so sees and describes Oiseuse, who keeps the gate (RR, 497-574) and who lets him in. Once inside, there are more sights to record as Amant becomes

acquainted with the interior of the garden and its occupants (RR, 631-1410). The suspicion that sight aids love is confirmed when Amant, hounded by Amors, is hit by five of the god's arrows. The bow has been strung and the arrows prepared by Dous Regart (RR, 1304-12). The arrows are named Biauté, Simpleice, Cortoisie, Compaignie and Biau Semblant. These lodge in the heart of Amant after entering his eye, indicating that it is through vision that love is born.¹⁴ He is able to remove the shafts, but not the heads, which cause him great pain and suffering (RR, 1681-880). The arrows stand for attractive aspects of the lady, and the incident as a whole is an elaboration of the traditional idea that seeing the beloved is the first cause and continuing stimulus to erotic passion. Guillaume's general elaboration of visual events can thus be considered as not just appropriate to the type of poem he is writing, but essential to an allegorical work about the beginnings and the process of love.¹⁵ Amor himself stresses the importance of looking at the object of love to inflame desire:

Grant joie en ton cuer demenras
 De la biauté que tu verras,
 Et saches que du regarder
 Feras ton cuer frire et larder,
 Et tout adés en regardant
 Recouverras le feu ardant.
 Qui ce qu'il aime plus regarde
 Plus alume son cuer et larde.
 Cis lars alume et fet flamer
 Le feu qui fait les gens amer.

(RR, 2339-48)

Amant only becomes vulnerable to the arrows of Amor after he has looked into the Fountain of Narcissus. The episode is crucial both in the context of Guillaume's poem and in the development of the second half of the Roman, and is one of three passages where mirrors have an important function. The fountain

is actually the one where Narcissus died and his story is briefly retold (RR, 1439-1506). Guillaume uses it as an exemplum: disdainful ladies should take warning from the fate of Narcissus (RR, 1507-10). After a moment's hesitation, Amant himself gazes into the water and sees there two multi-coloured crystal stones illuminated by the rays of the sun. The crystals are mirrors which each reflect one half of the garden (RR, 1537-70).

Amant is seeing the experience of love in prospect.¹⁶ He is not aware of the existence of the rosebud, the later object of his quest, until he sees it reflected in the crystal stones (RR, 1615-80). To some extent, he is repeating the experience of Narcissus, who brought about his own destruction by gazing into the fountain:

C'est li miroers perilleus,
 Ou Narcisus li orgueilleus
 Mira sa face et ses ianz vairs,
 Dont il jut puis morz toz envers.
 Qui en cel miroer se mire
 Ne puet avoir garant ne mire
 Que tel chose a ses ianz ne voie
 Que d'amer l'a tost mis en voie.

(RR, 1571-78)

Love itself is destructive, whether centred on self or on another:

Car Cupido, li fiz Venus,
 Sema ici d'Amors la graine,
 Qui toute a teinte la fontaine,
 Et fist ses laz environ tendre,
 Et ses engins i mist pour prendre
 Damoiseles et damoisiaus,
 Qu'Amors ne viaut autres oisiaus.

(RR, 1588-94)

Yet Amant is unlike Narcissus in not gazing at his own reflection but at the object of his love. At one level of interpretation he is gazing into the eyes of his lady, realising the promise which they hold, desiring the beauty (Biauté is the first arrow to strike his eyes) which they represent. At the same time, the

images in the crystal stones are projections of his own desires for amatory fulfilment: "Main de fort eure m'i mirai" (RR, 1607). The episode is a topographical version of the experience of gazing into the lady's eyes, while at the same time discovering that the same eyes reflect the lover's own image. The fountain is perilous, uncertain and deceptive, accurately demonstrating the dilemma of reconciling the illusions of desire with the wishes of the desired:

Las! tant en ai puis sospiré!
 Cis miroers m'a deceü.
 Si j'eüsse avan coneü
 Queus sa force iert et sa vertuz,
 Ne m'i fusse ja embatuz,
 Car maintenant ou laz chaï
 Qui maint ome a pris et trai.

(RR, 1608-14)

For more than two centuries after its composition, the Roman de la rose profoundly affected the sensibilities of European poets and audiences. A Middle English version appeared in the fourteenth century, the first fragment of which has been attributed to Chaucer.¹⁷ His translation of the Roman is referred to by the God of Love in the Prologue to the Legend of Good Women (LGW, G-text, 253-63), and there can be no doubt that Chaucer was steeped in the language, ideas and imagery of both parts of the poem. The numerous instances of particular borrowings have long since been catalogued.¹⁸ The French love-poets of the thirteenth and fourteenth century were also much indebted to Guillaume de Lorris, and they continued to stress the importance of vision in the experience of love.¹⁹

(iii) The French Love-Poets: Machaut, Froissart, Graunson and Deschamps

Guillaume de Machaut (c.1300-1377) occupies a dominant position

in French poetry and music,²⁰ and his works served as important models for Chaucer.²¹ In his Jugement dou Roy de Behaingne, a knight speaks of his love in the following terms:

Un dous regart riant me fist lancier
Par mi le cuer, et moy si enlacier,
Qu'il me sousmist en son très dous dangier,
Sans repentir.
Si me plut tant cils dangiers a sentir,
Quant cils regards se deingnoit assentir
A descendre seur moy, que, sans mentir,
Je ne savoie
Qu'il m'avenoit ne quele part j'estoie;
Car scens, vigour et maniere perdoie,
Si durement par ses yeux me sentoie
Enamourez.

(Behaingne, 433-44)²²

Amant's complaint in the Remède de Fortune, makes play with the idea that the lady is herself a source of light, while her eye-ray itself has a stunning effect:²³

Einsi sa parfaite biauté,
Fresche et douce com fleur d'esté,
Et la merveilleuse clarté
De son viaire
Dont je me vi enluminé,
Le ray de son oueil que plus n'é,
Mes cinc sens orent tost maté;
Plus n'en pos faire.

(Fortune, 1273-88)²⁴

An incident which occurs earlier in the poem is derived from Guillaume de Lorris's Fountain of Narcissus episode, when Machaut's lover stares at his own reflection in a fountain as a preliminary to a prolonged period of psychological self-reflection.²⁵

Machaut is less hidebound than his successors in the treatment of vision. A vein of realism at times accommodates a wider application of ideas of perception.²⁶ The Jugement dou Roy de Navarre, for example, begins with a lengthy description of

the plague. The pestilence darkens the air, making for dull, monochrome vision:

... si obscurs
Estoit, que montaignes et plains
Estoient de bruines pleins ...
(Navarre, 28-30)²⁷

Both "clarté et couleur" are lost "en signe de douleur" (Navarre, 161-62). The connection between the dismal atmosphere and the moral torpor of the age is developed at length (Navarre, 48-56). Once the plague - actual and moral - has lifted, vision improves:

Et ouvri mes yeus et ma chiere
Devers l'air qui si dous estoit
Et si cler qu'il m'amonnestoit ...
(Navarre, 82-84)

Machaut's metaphorical application of perceptual ideas, however, remains in a suggestive and undeveloped state.

Another, later French poet whose work Chaucer knew, was Jean Froissart (c.1337-c.1404).²⁸ In the Paradys d'amour, Plaisance speaks to the lover and describes the first stirring of love, through vision:

En l'oeil lor boute et en l'oreille
La beauté dont je sui ministre,
Et Cupido lors aministre
Son arc et si traist de sa flece,
Dont amouusement il blece
Les douls coers dont il s'entremet.
Par l'oeil la fleche ens ou coer met ...
Et sitos qu'amant s'entrevoient,
De douls regards il se convoient
Qui leurs coers lor passe et les perce.
(Par. d'am., 486-92 and 505-7)²⁹

The Complainte de saint Valentin of Oton de Graunson (c.1340-1397),³⁰ whom Chaucer described as "flour of hem that make in Fraunce" (Ven., 82),³¹ uses the now familiar conceit:

... je vous supplie,
 Plourez tresdolareusement
 Ma dame et son tresbel corps gent
 Que la mort a fait deffiner
 Par son dart outrageusement,
 Que mon cuer mauldrist sans cesser.
 (Comp. s. Val., 35-40)³²

The conceit reappears in the lyrics of Eustache Deschamps (1346-
 c.1407), and is adopted in the Chaucerian Merciles Beaute:³³

Your yen two wol slee me sodenly;
 I may the beautee of hem not sustene,
 So woundeth hit thourghout my herte kene.
 (MercB, 1-3)

In the circumstances, it would be ill advised to argue that Chaucer's treatment of sight in relation to love derives from a particular source in the French poetry which he knew, however influential that poetry was.³⁴ It is not just that the conceit of being wounded by the lady's eyes is the common property of the French love-poets; it had been the common property of European poetry since the twelfth century, when Chrétien de Troyes considerably elaborated the idea.³⁵ Before him, it occurs in Arabic poetry,³⁶ and before that in classical literature, where it has a mythic status in Cupid's arrows, which traditionally enter through the eye to lodge in the heart.³⁷ Indeed, the origins of the conceit are of considerable interest, for it enshrines a classical concept of vision: that rays issue from the eye, not to it.³⁸ Once bequeathed to the West, it continues to express in fossilised form a theory of perception discredited in the eleventh century by Alhazen.³⁹

At a time when there is a renewed interest in the experience of visual perception, it is likely that the traditional ideas of the importance of sight in the processes of love will become

absorbed in larger interests connected with sight, such as the sense of space. This process can be seen at work, if not in the French love-poets, then in Boccaccio and, partly through Boccaccio, in Chaucer. The reactivation and transformation of visual conventions in Il Filostrato and Troilus and Criseyde will be considered in a later part of this chapter. It now remains to make some remarks as to why the French poetry so far discussed acted as a channel for traditional ideas of vision in love and not, by and large, for new ones.

The answer is partly historical and partly aesthetic. Guillaume de Lorris, whose influence on later writers was considerable, was writing too early for the scientific revival to have had much effect on his work. This circumstance does not explain why his successors, men like Machaut, Froissart and Graunson, also chose to ignore an optical revival which by their time was in full flood. The explanation in their cases lies, in addition to their admiration for de Lorris, in the limitations of their subject matter combined with the modes in which they chose to write. For them, the psychology of love was best articulated as lyric, or within the framework of a dream, or allegorically, or in the course of a debate. Each mode can, if the poet so wishes, avoid contact with the tangible world and either eschew narrative altogether or use it only as occasion demands. The end-product is a poetry of ideas, postures and moods, not one of action. It is essentially non-realistic, being more concerned with abstractions artificially expressed than with percepts realistically described.⁴⁰ As will be seen, there is nothing about these literary modes which is essentially

hostile to optical influence. In Dante, allegory fathers a dazzling array of optical devices. In the second part of the Roman de la rose, debate, allegory and dream combine to place optics at the centre of the poem. But both Dante and Jean de Meun, like Boccaccio and Chaucer, are broad in their sympathies. The narrowing of focus to the fluctuations of a particular type of emotion and a distaste for narrative, such as occur with the French love-poets, makes for a kind of poetry resistant to the naturalistic treatment of vision, light and space, whose first home is in the tangible world.

(iv) Jean de Meun, 'Le Roman de la rose'

In the second part of the Roman de la Rose, completed c.1275 by Jean de Meun (c.1237-1305), it becomes clear that its author is intent on directing attention towards a mirror different in kind from Guillaume de Lorris' mirror of Narcissus. It represents the idea of a divine exemplar, a common application of the mirror in the neoplatonism of the time.⁴¹ Genius, the priest and confessor of Nature, describes an ideal park, opposed to Guillaume de Lorris' garden, where a "bon pasteur" (RR, 19994) looks after his chosen flock. It is a true paradise, eternally light and eternally spring, and full of living creatures. In the course of a disparaging commentary on Guillaume's garden of erotic love, Genius describes a new life-giving fountain in the park of the good shepherd. By comparison, the Fountain of Narcissus is "Tant amere et tant venimeuse" (RR, 20410) and is to be deplored. Genius claims that Amant was himself aware of its cruelty when he called it the perilous mirror and looked into it. Its reflecting crystals are "trouble et nueus"

(RR, 20448) because they are lit from elsewhere. . . . The fountain in the park, however, contains a marvellous carbuncle so pure and bright that it provides its own light, shining more strongly than the sun itself and vanquishing night (RR, 20524-36).

Those who see themselves mirrored in this fountain perceive the truth both about the park and themselves. The rays of the carbuncle-mirror do not deceive; their effect is

... renforcier et resjoïr
Et revigourer leur veüe
Par sa bele clarté veüe,
Pleine d'atrampee chaleur,
Qui par merveilleuse valeur
Tout le parc d'oudeur replenist
Par la grant douceur qui en ist.

(RR, 20584-90)

Love of God is thus contrasted with love of self.

Mirrors are the subject of discourse on a second occasion, when Nature comments on the origins of rainbows. Anyone, says Nature, wishing to understand them should become a disciple of Aristotle and read the Regarz (De aspectibus) of Alhazen, whose proofs can only be grasped with a knowledge of geometry (RR, 17981-8043). Alhazen's book also reveals how magnifying mirrors work. Nature and Genius agree that if Venus and Mars had possessed the right optical equipment it would have enabled them to detect Vulcan's net before being trapped in it (RR, 18044-129). Mirrors can also cause other effects. They can diminish the size of a reflected object, alter its position or multiply it. They can produce phantoms and be the cause of "granz decevances" (RR, 18210). The ignorant observer may be so convinced of the truth of what he has seen that he will make boast to others. Nature concludes her comments by saying that the explanation of optical phenomena - how rays travel, their

angles of reflection, the mechanism of the eye - "est ailleurs escrit an livre" (RR, 18252). Given a knowledge of the science, visual illusions can be rationally explained.

The passage is an interesting and early example of the influence of optics on literature.⁴² But it is more than this. Nature's remarks are part of a lengthy discourse on heavenly influences in which optics has its proper place. God created the universe and set it in motion (RR, 16729-822). Man is controlled through the mirror of predestination (RR, 17421-98). God's instruments are the heavenly bodies which receive the divine rays (RR, 17499-526). The stars in turn influence events on earth, events which include the formation of rainbows (RR, 17875-8000 and 18535-60). So the behaviour of light rays is an earthly extension of the principle or mechanism by which God rules the life of man. Just as the ignorant can wrongly perceive the marvellous effects of mirrors, so wilful individuals are subject to distorted forms of spiritual perception. Lovers and dreamers are particularly susceptible to self-inflicted delusions, like those

Qui maintes feiz, senz ordenance,
Par naturel acoustumance,
De trop penser sont curieus,
Quant trop sont melancolieus
Ou poereus outre mesure,
Qui mainte diverse figure
Se font pareir en aus meïsmes
Autrement que nous ne deïsmes
Quant des miroers palions,
Don si briement nous passions;
Et de tout ce leur semble lores
Qu'il seit ainsinc por veir defores.

(RR, 18345-56)

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Gunn was the first to propose that Nature's discourse on optics, apparently so peripheral, is in fact pivotal in Jean de

Meun's conception of the whole Roman. The problem of the poem's unity has always beset its editors and critics, with various solutions being advanced.⁴⁴ Gunn drew attention to the proper title of the poem, endorsed by both Guillaume and Jean: Le Mirouer des amourens (RR, 10648-51).⁴⁵ Jean's intention, Gunn claimed, was to use his own continuation as a glass which would reflect "the true images of love's varied dance" and the distorted images which false love produces.⁴⁶ The mirror thus becomes "the allegory's grand and all-pervasive symbol".⁴⁷ Jean elaborates the idea of the mirror both from contemporary science and from traditional neoplatonic sources in which a sequence of reflection is used as an analogy for the divine generative process.⁴⁸ Nature's discourse on optics is important as a means of placing the mirror of Narcissus in the context of the ultimate mirror of truth which is God.⁴⁹ The passage reveals what is "most central and profound in the poet's thought".⁵⁰ The visions provided by the mirror of secular love are the reflections of self-deluding fantasy compared with

... the world of true and fruitful images,
each of which is reflected from the stainless
and ever-luminous mirror which is the Mind of
God.

51

The symbol of the mirror is as important as that of the rose.⁵²

Recently, Gunn's thesis has been extended and modified by Eberle, who has probed more deeply contemporary meanings of the word "mirouer". Eberle first places Nature's discourse in relation to scientific optics in the thirteenth century, particularly the writings of Robert Grosseteste.⁵³ She develops the notion that the whole poem is deliberately designed as an optical instrument in which the experience of love is

viewed from various angles.⁵⁴ Just as, to Grosseteste, optics revealed the workings of the divine light in nature, so the Roman, as conceived by Jean de Meun, "imitates and reveals the operations of Nature herself".⁵⁵ Further, the poem multiplies 'projections' of the lover's mind in the same way that optics multiplies the images of seen objects.⁵⁶ Secondly, the poem is a mirror in the tradition of the Speculum stultorum of Nigel Longchamp. Using satire, it distorts in order to reveal folly.⁵⁷ Thirdly, following Seneca's Naturales quaestiones, Jean represents his mirror as a corrective to faulty moral vision.⁵⁸

The interpretations of Gunn and Eberle, if they are correct, reveal the remarkable extent to which scientific optics penetrated the poetic outlook of Jean de Meun. If he represented reflection and the production of images as metaphors for the way his poetry worked, he was doing no more than extending an idea already current in the scientific field. For optics itself, the science of vision and light, stood as a metaphor for the way God worked, through the emanation of the divine Light which created and was reflected in earthly existence.⁵⁹ Nature's discourse on optics in the Roman de la rose is the tip of an iceberg, interesting and topical in itself but supported by a deep imaginative understanding of the subject, an understanding which affects the entire structure and meaning of the poem. The work itself, read in this way, becomes a potent force for the transmission of ideas about optics, both in general and specific terms. As such, the Roman is part of a significant trend in European poetry of the thirteenth and fourteenth centuries.⁶⁰

In his study of Chaucer's use of the Roman, Fansler asserts

that Chaucer evidently had favourite passages by Guillaume de Lorris and Jean de Meun. One of these is Nature's discourse on optics.⁶¹ It is intriguing that Chaucer made direct use of this, the passage which later critics have come to regard, as we have seen, as the heart of the poem. The borrowing occurs in the Canterbury Tales. When it falls to the Squire to make his contribution, the young man produces a traditional tale full of marvels, romance and adventure. At one point, Chaucer has him describe the arrival of a mysterious messenger at Cambyuskan's court. He gives four magic gifts to the king, among which is a mirror that can reveal the future, who friends and who enemies, and show the infidelity of lovers. The mirror is carried for safe-keeping to a tower and it becomes the subject of a debate among the courtiers, who have been gossiping about the sudden adventure that has befallen the court. They argue about how the mirror works:

And somme of hem wondred on the mirour,
 That born was up into the maister-tour,
 Hou men myghte in it swiche thynges se.

Another answerde, and seyde it myghte wel be
 Naturelly, by composiciouns
 Of anglis and of slye reflexiouns,
 And seyde that in Rome was swich oon.
 They speken of Alocen, and Vitulon,
 And Aristotle, that writen in hir lyves
 Of queynte mirours and of perspectives,
 As knowen they that han hir bookes herd.

(SqT, V.225-35).

The sources and analogues of this Tale include a mirror, but its properties are entirely ascribed to magical sources.⁶² Chaucer has therefore of his own volition introduced into the narrative an account of the mirror based on scientific optics. The tone of his insertion is authoritative. It is suggested that the mirror's powers may be caused "Naturelly" (SqT, V.229)

according to the physical laws of nature rather than by magical agency. The phrase "composiciouns/Of anglis and of slye reflexiouns" (SqT, V.229-30) brings to mind the computations in the optical treatises in which the reflection of light rays is plotted and calculated by geometry.⁶³ There are references to three of the major authorities, Alhazen, Witelo and Aristotle; and the last line, "As knowen they that han hir bookes herd" (SqT, V.235), seems to imply at least as one of its meanings, that the narrator knows more about the subject than he cares to reveal. In short, these lines read as though their author is well versed in the science of perspectiva.

That is precisely the impression they are designed to create here and in their source, Nature's speech on optics in the Roman de la rose, where the authoritative tone is similar to that of Chaucer's courtier. Nature explains how the effects of mirror and lenses can seem marvellous to the ignorant or uninitiated, although they are scientifically explicable to those who "han hir bookes herd" (SqT, V.235):

Et quant ainsinc sont deceu
 Cil qui teus choses one veu
 Par miroers ou par distances,
 Qui leur ont fait demontrances,
 Si vont puis au peuple et se vantent,
 Et ne dient pas veir, ainz mentent,
 Qu'il ont les deables veüz,
 Tant sont es regarz deceüz ...
 ... si serait grief chose a dire
 Et mout serait fort a l'entendre,
 S'il iert qui le seüst aprendre
 A genz lais especiaument,
 Qui nou dirait generaument.

(RR, 18231-38 and 18274-78)

The names of Aristotle and Alhazen occur and allusion is made to the connection of optics with natural science and geometry.

Nature explains that rainbows

... sont apeléz ars celestres,
 Don nus ne set, s'il n'est bon maistres
 Pour tenir des regarz escole ...
 ... li couvendrait prendre cure
 D'estre deciples Aristote,
 Qui meauz mist natures en note
 Que nus on puis le tens Caïn.
 Alhacen, li niés Huchain,
 Qui ne refu ne fos ne garz,
 Cist fist le livre des Regarz;
 De ce deit cil science avoir
 Qui veaut de l'arc ou ciel saveir;
 Car de ce deit estre juigierres
 Clers natureus et regardierres;
 E sache de geometrie,
 Don necessaire est la maistrie
 Au livre des Regars prouver ...
 (RR, 18023-25 and 18030-43)

The effects produced by mirrors can be understood through
 "composicions/Of anglis and of slye reflexiouns" (SqT, V.229-
 30):

Autre font diverses images
 Apareir en divers estages,
 Dreites, bellongues e enverses,
 Par composicions diverses ...
 Font les neïs dehors pareir
 Touz vis, seit par eve ou par air;
 E les peut l'en voeir joer
 Entre l'ueil et le miroer
 Par les diversitez des angles,
 Seit li meiens compos ou sengles,
 D'une nature ou de diverse ...
 Mais ne vueil or pas metre cures
 En desclareier les figures
 Des miroeirs, ne ne dirai
 Coment sont reflechi li rai,
 Ne leur angles ne vueil descrivre:
 Tout est ailleurs escrit en livre ...
 (RR, 18173-76, 18183-89 and 18247-52)

Chaucer's optical insertion in the Squire's Tale is not
 entirely derivative. Unlike Jean de Meun, he mentions Witelo
 and the last line, "As knowen they that han hir bookes herd"
 (SqT, V.235), a version of "Tout est ailleurs escrit en livre"
 (RR, 18252), suggests that he was aware of the setting in which
perspectiva would be studied: as part of the quadrivium at a

university, where students would hear lecturers read and comment on the key texts. These minor additions to the French source amount to very little, but the existence of these lines in the Squire's Tale raises the more general question of why Chaucer should have introduced into the dreamy, distant world of the narrative such concrete and topical references to this particular science. No doubt he was amused by incongruous associations, but he was also responding to a contemporary interest. There would have been no point in writing these lines unless they were intelligible and attractive to an audience, unless it already had certain expectations related to perspectiva.

C. THE INFLUENCE OF ITALIAN POETRY

(i) Historical Background

It is not known what prompted Chaucer to learn the Italian language and begin reading Italian literature.⁶⁴ There is reliable documentation for diplomatic journeys to Padua and Florence in 1372 and to Lombardy in 1378.⁶⁵ On the former occasion, Chaucer was accompanied by two Italians. It is possible that he had begun learning Italian some years earlier. If he was still a member of Duke Lionel's household in 1366, his studies may have begun in preparation for the Duke's intended marriage to Violante, daughter of Galeazzo Visconti of Milan. It is also likely that Chaucer was in contact with Italians in England. Merchants and financiers had been established in this country for over a century. The Bardi of Florence were bankers both to Henry III and Richard II.⁶⁶ Chaucer may have met such men at court or during his time as Controller of the Port of London (1374-1386). Alternatively, Englishmen returning from Italy may have provided the necessary stimulus to study Italian literature.

Italian poetry was unknown to the generality of Chaucer's audience. It was not, like French poetry, important common ground between author and public. In fact, Chaucer was himself responsible for 'introducing' Dante, Boccaccio and Petrarch⁶⁷ into the mainstream of the English poetic tradition. In the event, Dante and Boccaccio were more influential than the French love-poets on Chaucer's representation of the visual world. Dante, through his concern with the Light of God, transmitted both the theological tradition of light symbolism and the impact

of scientific optics; and Boccaccio used the visual perception of the individual to modulate subjective experience.

(ii) Dante Alighieri, 'Divina commedia'

In the Divina commedia of Dante Alighieri (1265-1321), optical material is used so extensively and with such wide implications that only a selective treatment will be possible here. Its immediate origins are to be found in Bonaventure⁶⁸ and Aquinas⁶⁹ as well as in Dante's own knowledge of scientific texts.⁷⁰

What is impressive about the Commedia is its complete integration of scientific optics with the symbolic uses of light, vision and space. The latter are used, as they had been for centuries, to signify states of spiritual cognition. But Dante had found a way of describing simultaneously the outer and inner eye, so that the experience of the one is constantly enriched and changed by the gathering awareness of the other. At the same time, his account of the visual experience of the narrator travelling through the universe is done with a remarkable degree of scientific and observational precision, a factor which helps to make the journey credible. The Commedia constitutes, in the words of one critic, "un breviario di prospettiva".⁷¹ This feature of Dante's work aligns him with the tradition of metaphysical optics established by Robert Grosseteste.⁷² For present purposes it is convenient to examine in turn some of Dante's uses of light, vision and space.

Dante's journey through Hell, Purgatory and Paradise is a journey towards the primal light of creation. Consequently light, the prerequisite of vision, becomes in the Commedia progressively more intense, showing that Dante is approaching the

source of spiritual truth. The first intimation that light and truth are one occurs in the opening lines of Inferno. As Dante makes his way through the dark wood, he discerns the hopeful sign of a hill lit by the rays of the sun (Inf, I.13-18).⁷³

This light carries the promise of divine illumination. Before Dante and Virgil enter Hell, "ove non è che luca" (Inf, IV.151),⁷⁴ they encounter in Limbo the virtuous pagans who, through the application of natural reason, have glimpsed divine truth. So it is that they exist in "un foco/ch'emisperio di tenebre vincia" (Inf, IV.68-69). Hell itself is a place of gloom, where the human intellect is obscured by sin.⁷⁵

In Purgatorio darkness, "quella col nonpoder la voglia intriga" (Purg, VII.57), is defeated by the sun, which provides a bright light and a clear atmosphere.⁷⁶ The stars and the sun move over the heavens and guide the travellers on their way towards the summit of the mountain (Purg, XIII.13-21).⁷⁷ The sun is the means whereby Dante and Virgil approach the first light, and with the sun's beams striking full in their faces, Virgil explains to Dante that the sun and God's goodness are of the same nature. As the sun reflects from a bright object, so does God's goodness enhance the ardour of man's love of God:

Quello infinito e ineffabil bene
che là sù è così corre ad amore
com'a lucido corpo raggio vene.
Tanto si dà quanto trova d'ardore;
sì che, quantunque carità si stende
cresce sovra'essa l'eterno valore.
E quanta gente più là sù s'intende,
più v'è da bene amare, e più vi s'ama,
e come specchio l'uno a l'altro rende.

(Purg, XV.67-75)⁷⁸

The sun serves as a symbol of God's bounty and goodness until the tenth canto of Paradiso, when Dante and Beatrice arrive

at its sphere. Beyond the sun is the light of God himself, the formative principle of the universe which generates the nine orders of angels who turn the celestial spheres:

... quella viva luce che sì me
dal suo lucente, che non si disuna
da lui né da l'amor ch'a lor s'intrea,
per sua bontate il suo raggiare aduna,
quasi specchiato, in nove sussitenze,
etternalmente rimanendosi una.

(Par., XIII.55-60)⁷⁹

As this light multiplies, so does the love it kindles in man

(Par., X.82-90).⁸⁰ In Paradise, the souls of the blessed, like

Beatrice herself, participate to a greater or lesser extent in

the divine light. The larger the sphere of the universe, the

more it contains of God's virtue (Par., XXVIII.64-66). The primal

light creates and illuminates the spheres, which glow with

different splendours, although the informing light remains one

(Par., XXIX.136-41).⁸¹ Having passed beyond the final sphere,

Dante and Beatrice enter "al ciel ch'è pura luce:/luce

intelletual, piena d'amore" (Par., XXX.39-40).⁸² They are swathed

in blinding brilliance until, like a candle is given flame,

Dante's sight is restored,

e di novella vista mi raccesi
tale, che nulla luce è tanto mera,
che li occhi miei non si fosser difesi ...

(Par., XXX.58-60)

He sees a splendid river of light in which he bathes his eyes in

order to be granted yet fuller perception. The river turns into

a circle of light, its whole expanse "Fassi di raggio ... riflesso

al sommo del mobile primo" (Par., XXX.106-7). Dante finally

comprehends the Eternal Light itself and he realises that it

informs all creation:

Nel suo profondo vidi che s'interna,
legato con amore in un volume,
ciò che per l'universo si squaderna:
sustanze e accidenti e lor costume
quasi conflati insieme, per tal modo
che ciò ch'ì dico è un semplice lume.

(Par., XXXIII.85-90)⁸³

It is an artificial exercise to separate the treatment of light and vision in the Commedia. As the last example shows, they are complementary features of the poem. It is important, however, to make a distinction between the separate areas of meaning associated with these two optical components. Light enjoys an independent existence: it is something the source of which can be approached, expressing the pre-existent and eternal bounty of God's love. Sight, on the other hand, is used to monitor Dante's response to this light and hence the gradual development of his spiritual awareness. If the elaborate treatment of light in the Commedia can be identified as belonging to the tradition of which Grosseteste is a representative, then Dante's similarly elaborate treatment of vision aligns him with the psychological study of perception of which Alhazen is the chief representative.

One of the ways in which Dante indicates the misapprehension of God by man is by describing incidents in the course of his pilgrimage in which his sight is deceived. In Inferno, the "cieco mondo" (Inf., IV.13) of sin, Virgil has to remind Dante that his understanding is affected by ignorance, his sight deceived by distance:

Però che tu trascorri
per le tenebre troppo da la lunghi,
avvien che poi nel maginare abborri.
Tu vedrai ben, se tu là ti congiungi,
quanto 'l senso s'inganna di lontano ...

(Inf., XXXI.22-26)

The poet's perception of distant scenes is progressively more sure and distinct in the clearer light of Purgatory. It is indicative of Dante's spiritual education that there he should be able, with the aid of his own reason rather than with the help of Virgil, to overcome a deceptive sight and see an object for what it is. Seven golden trees become golden candlesticks, representative of the gifts of the spirit:

Poco più oltre, sette alberi d'oro
falsava nel parere il lungo tratto
del mezzo ch'era ancor tra noi e loro;
ma quindi' fui sì presso di lor fatto,
che l'obietto comun, che 'il senso inganna,
non perde per distanza alcun suo atto,
la virtù ch'a ragion discorso ammana,
sì com'elli eran candelabri apprese ...
(Purg., XXIX.43-50)⁸⁴

Similar in application to the passages on deceptive vision are those which concern weak sight. As Dante's proneness to optical illusions gradually disappears, so his weak sight is gradually strengthened. In the second canto of Purgatorio, the angel of God approaches, growing larger and brighter as it does so. Dante cannot bear to look at such intense brightness and this inability signals his sinfulness (Purg., II.13-42). When the angel next appears, Dante has only to shield his eyes from the light rather than avert them. Virgil tells him that his progress will continue so that

Tosto sarà ch'a veder queste cose
non ti fia grave, ma fiato diletto
quanto natura a sentir ti dispuose.
(Purg., XV.31-33)

Dante later explains to the lustful: "Quinci sù vo per non esser più cieco" (Purg., XXVI.58).

In Paradiso, Dante's powers of vision rapidly grow stronger.⁸⁵ He imitates Beatrice in looking directly at the sun (Par., I.46-

54). She herself has perfect vision (Par., V.1-6), with which she helps Dante. In the sphere of the sun, his spontaneous prayer of wonder causes Beatrice to smile and so give him further insight: "lo splendor de li occhi suoi ridenti/mia mente unita in più cose divise" (Par., X.62-63).⁸⁶ The eagle of divine justice later explains that vision comes from God. It is "alcun de'raggi de la mente/di che tutte le cose son ripiene" (Par., XIX.53-54), yet on earth its abilities are limited: there it can see the surface of the sea but not its depths, for it may be weakened by "ombra de la carne" (Par., XIX.66). In Paradise, there are no such impediments. Beatrice points out that the first triad of angels derive their delight primarily not from love but from the depth to which their sight or spiritual understanding penetrates truth, for

... si fonda
 l'esser beato ne l'atto che vede,
 non in quel ch'ama, che poscia seconda;
 e del vedere è misura mercede,
 che grazia partorisce e buona voglia ...
 (Par., XXVIII.109-13)⁸⁷

In the final stages of his ascent through the spheres, Dante's own sight is perfected. He perceives Beatrice from afar, her crown reflecting the divine light. Distance no longer has a dimming effect: "ché sua effige/non discendëa a me per mezzo mista" (Par., XXXI.77-78). In the final canto, Dante's sight is made pure and vision replaces speech as a means of inner illumination.

e più e più intrava per lo raggio
 de l'alta luce che di sé è vera.
 Da quinci innanzi il mio veder fu maggio
 che 'l parlar mostra, ch'a tal vista cede,
 e cede la memoria a tanto oltraggio.
 (Par., XXXIII.53-57).

Before the perfecting of Dante's sight in the closing stages of the poem, the poet is consistently careful to make his visual experience recognisably human. This realistic attitude towards acts of seeing reinforces the intimate connections made in the poem between present and eternal life. The perfecting of the inner eye of the spirit begins on earth. A number of extended similes compare the personal experiences of the traveller with similar ones in everyday life. Flames which Dante sees burning in the eighth bolgia of Hell are like fireflies in a valley at dusk:

Quante 'l villan ch'al poggio si riposa,
 nel tempo che colui che 'l mondo schiara
 la faccia sua a noi tien meno ascosa,
 come la mosca cede a la zanzara,
 vede lucciole giù per la vallea,
 forse colà dov'e vendemmia e ara ...

(Inf., XXVI.25-30)⁸⁸

Progress up the mountain of Purgatory, illuminated as it is by celestial bodies, allows for further connections between the perceptions of the other world and those of this. Dante and Virgil emerge from a fog which has surrounded them to perceive the sun dimly, as the earthbound traveller glimpses the sun as a disc through mountain mists. An appeal is made to the experience of the reader:

Ricorditi, lettor, se mai ne l'alpe
 ti colse nebbia per la qual vedessi
 non altrimenti che per pelle talpe,
 come, quando i vapori umidi e spessi
 a diradar cominciarsi, la spera
 del sol debilmente entra per essi ...

(Purg., XVII.1-6)⁸⁹

In scenes such as these, a sense of space is unavoidably conveyed. Muscatine has argued that two types of space occur in the Divina commedia, to produce a "Gothic tension".⁹⁰ One

is a traditional type of space, found also in such works as the Psychomachia of Prudentius and the Anticlaudianus of Alan of Lille, which is conceptual and schematic. It is used by Dante to order the ideological relationships in and between Hell, Purgatory and Paradise. The other type of space, with which this analysis of the Commedia is concerned, is produced through the personal perceptions of the pilgrim narrator.

Note, on the one hand, the rationalized pattern, with its numerical hierarchic orderings - reflecting by their locations immutable moral relationships; on the other, the continuously personal and humane response of the pilgrim who traverses this moral landscape, suffusing, I repeat, the abstract pattern with drama and immediacy.

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Muscatine suggests that the second spatial effect is achieved by multiple means: an accurate and consistent first-person viewpoint; consistency in direction, location and time; continuity and connection between places; and a verisimilitude of human response to experience, involving attention to the details of touching, walking, talking or casting shadows. In such ways, "an irregular, humane naturalized setting /is used/ to represent psychological and emotional experience".⁹²

Within the containing architectonics of Hell, the sense of enclosed space is particularly strong. Dante stands on its brink, which

Oscura e profonda era e nebulosa
tanto che, per ficcar lo viso a fondo,
io non vi discernea alcuna cosa.

(Inf., IV.10-12)

As he and Virgil are taken through the air to the eighth circle,

Dante registers their descent - "vidi poi, ché nol vedea davanti"

(Inf., XVII.124) - by the approaching sights of the torments of

the damned. He later records, as he witnesses the punishments of the counterfeiters, his ability to see down to the bottom of the pit: "fu la mia vista più viva/giù ver'lo fondo" (Inf., XXIX.54-55). In Purgatorio, as we have seen, there is more of a sense of openness as the sun and stars wheel overhead. In Paradiso, the sense of physical space finally dissolves in a sense of the infinite, much as the human powers of sight are replaced by perfected vision. In the terms of Muscatine, schematic and individual space become one.

The Commedia is strewn with analogies, taken from the science of optics, which explain the behaviour of light and vision. They strongly recall the optical exempla discussed in the previous chapter. Appropriately for a cantica much concerned with light, they occur with greatest frequency in Paradiso.⁹³ The effect of Beatrice's looking at the sun on Dante is like that of a reflected ray of light (Par., I.49-54).⁹⁴ They enter the sphere of the moon "com'acqua recepe/raggio di luce permanendo unita" (Par., II.35-36).⁹⁵ Beatrice describes an experiment using a light and three mirrors to demonstrate that differences in the reflective capacity of this sphere are not caused by alterations in its distance from the light source (Par., II.91-105).⁹⁶ The angelic spheres and those of the universe are mirrors of God's light (Par., IX.61-63). The soul of Rahab sparkles "come raggio di sole in acqua mera" (Par., IX.114). The two circles of the Dominicans and Franciscans exist in relation to each other like two parallel rainbows, one born of the other (Par., XII.10-21).⁹⁷ The congregated souls

parea ciascuna rubinetto in cui
 raggio di sole ardesse sì acceso,
 che ne' miei occhi rifrangesse lui.

(Par., XIX.4-6)

Beatrice opens Dante's eyes

... come a lume acuto si disonna
per lo spirto visivo che ricorre
a lo splendor che va di gonna in gonna,
e lo svegliato ciò che vede aborre,
si nescia e la sùbita vigilia
fin che la stimativa non soccorre ...

(Par., XXVI.70-75)⁹⁸

The Trinity was formed

... come in vetro, in ambra o in cristallo
raggio resplende sì, che dal venire
a l'esser tutto non è intervallo ...

(Par., XXIX.25-27)

The eternal light, though reflected in many mirrors, remains as one (Par., XXIX.142-45). And the effect of entering the empyrean is

Come sùbito lampo che discetti
li spiriti visivi, sì che priva
da l'atto l'occhio di più forti obietti ...

(Par., XXX.46-48)⁹⁹

The Divina commedia registers many of the varieties of the medieval optical tradition discussed in the first two chapters of this thesis. It makes use of the metaphysics of sight; the deficiencies of human vision; the scientific explanation of light and perception; and the moral application of optical data. It can also be seen that Dante provides Chaucer with a major precedent for incorporating such material into the fabric of his poetry. There occur in Dante, as there were later to occur in the Reeve's Tale, Merchant's Tale and Book of the Duchess, instances of deceptive and weak vision, the effects of light and the metaphoric application of blindness. Later chapters will show that Chaucer also creates a sense of space in a purposeful way. It is tempting, therefore, to regard Dante

as an important source for Chaucer's handling of optical subjects. It is probably more accurate to see the Italian poet as a parallel case, reflecting the same scientific traditions to which Chaucer was also susceptible, but in different ways. At the most, Dante exerted a sporadic, if at times crucial, influence, and acted generally as a stimulus to considering light, vision and space appropriate as the stuff of poetry. For a moment's distancing will reveal how very different these two poets are in their treatment of these subjects. Dante always moves insistently and urgently towards a symbolic application of optical experience; Chaucer is frequently content to allow it to remain at an experiential level. If, for Chaucer, ideas of vision have a wider application, as they do in the Merchant's Tale, then these are kept within the confines of the narrative and its pattern of meaning; they are not subjected to an overarching ideology.

A brief examination of Chaucer's House of Fame will pinpoint some of these divergencies.¹⁰⁰ The dreamer's response to the eagle which seizes him pays attention to the visual effect of a fast approaching object. He first casts his eyes to heaven "with devocion" (HF, 494) and sees, as if in response to a prayer, something that looks like an eagle. It is as yet too distant to be distinct, being "faste be the sonne, as hye/As kenne myghte I with myn ye" (HF, 497-98). Geoffrey's sight, like Dante's, is feeble - a point reiterated when he complains of the stars: "they shynen here so bryghte,/Hyt shulden shenden al my syghte" (HF, 1015-16). The eagle is an exceptionally dazzling bird, seeming to be made of gold and shining like a second sun (HF, 502-7). As it descends, the dreamer is able to see it in

more detail and with more amazement:

I gan beholde more and more,
To se the beaute and the wonder...

(HF, 532-33)

The speed of the eagle's approach now becomes frightening as well as impressive. It is compared to the swift and destructive falling of a thunderbolt (HF, 534-39) and attention switches to the dreamer himself as it becomes clear that he is the prey (HF, 539-48). As the eagle looms larger, so does the fear of the victim.

A close parallel to this scene occurs in Purgatorio, IX.19-30 when Dante, also dreaming, imagines an eagle poised in the sky, its feathers of gold, which swoops like a thunderbolt to seize him and carry him skywards. He wakes to find that he has been brought to Purgatory.¹⁰¹ Similarly, Geoffrey's view of the hills, mountains, valleys and forests, beasts, rivers, cities, trees and ships of earth, which rapidly "No more semed than a prikke" (HF, 907) as they soar upwards, is like Dante's last vision of "questo globo/ tal, ch'io corrisi del suo vil semblante" (Par., XXII.134-35), surrounded by the spheres.¹⁰² Such passages in Chaucer's poem create a sense of space and perspective familiar from the Commedia.

It is difficult to state with equal precision the more far-reaching effects of Dante on Chaucer's optical interests. It could be said that the House of Fame is similar to the Commedia in being a poem which also describes an intellectual or mental flight giving rise to new insights (HF, 973). There the similarity appears to end. Unlike Dante, Chaucer questions the validity of the very experience he is describing: it is a dream, but dreams may be phantoms and illusions as well as revelations (HF, 1-52). What is more, Chaucer's dreamer is preoccupied not with the

illuminating love of God but with the blind love of human passion (HF, 617 and 681).

In spite of this unsettling context, there is a significant and to some extent stabilising emphasis on the visual experience of the dreamer. The frequent repetition of the verb "I saugh",¹⁰³ quite apart from the eagle's insistence on the importance of acquiring first-hand perceptual knowledge (HF, 887-95), indicates that the House of Fame is exploring the nature of poetry as an individual response to both experience and authority.¹⁰⁴ The reaction of Geoffrey to his physical surroundings and to written tradition, and then the expression of the need to place himself as a (potentially famous) poet in relation to these, is made through an 'I' who is shown assimilating and reproducing the experience of the eye, whether figuratively and intellectually focused on the written word, or literally and physically on the tangible world. Although such an aesthetic topic is not foreign to the Commedia, it is alien to it as a self-sufficient subject since for Dante art is at all times subservient to the great Maker who wrote with the Word the Book of the universe, bound together by love (Par., XXXIII.85-93).

In the case of the House of Fame, then, the influence of Dante's treatment of light, vision and space must be seen as superficial. Chaucer goes his own way, and it is a way almost subversive of the poem's great precursor. Clemen's judgement is worth endorsing:

What influenced Chaucer in the Divine Comedy was not the basic conception, the thoughts, the 'content'; it was Dante's method of presentation, the intensity, precision and perception with which he reproduced sensuous detail, visual impressions of movement and light for the most part, but also of sounds.

I will shortly argue that, in at least one other instance, the ending of Troilus, Chaucer did draw from the deeper reaches of Dante's interpretation of vision. Before presenting that argument, it is appropriate to consider the contribution of Chaucer's major source for the Troilus, Boccaccio's Il Filostrato.

(ii) Giovanni Boccaccio, 'Il Filostrato'

The treatment of vision and space in the Filostrato of Giovanni Boccaccio (1313-1375) is of a radically different order to that of Dante in the Divina commedia. Boccaccio's exclusive concern is with the experience of erotic love, played out in a material and tangible world. This love does not provide access to the love of God; it is self-enclosed, self-sufficient and sensually known. The sense which above all others is instrumental in registering the process of love is that of sight.¹⁰⁶ Troiolo falls in love on first seeing Criseida:

E diessi a più mirare il suo aspetto,
il qual più ch'altro in sé degno li pare
di somma lode, e seco avea diletto
sommo tra uomo ed uom di mirar fiso
gli occhi lucenti e l'angelico viso.
(Fil., I.xxviii.4-8)¹⁰⁷

The rays of Criseida's eyes, acting like arrows, are responsible for implanting the anguish of love in Troiolo's heart:

Né s'avvedea colui, ch'era sì saggio
poco davanti in reprendere altrui,
che Amor dimorasse dentro al raggio
di quei vaghi occhi con li dardi sui ...
(Fil., I.xxix.1-4)

Once ensnared, Troiolo is compelled to seek Criseida in order to see her. This is his solace and delight: "da' belli occhi trarre immaginava/acqua soave al suo ardor severo" (Fil., I.xli.4-5),¹⁰⁸

while Criseida's eyes can also confer peace (Fil., V.lxii.1-4). When Criseida leaves Troy for the Greek camp, Troiolo's distress in not being able to see her is extreme. Criseida is "sol conforto/degli occhi, tristi fiumi divenuti" (Fil., V.xxiv.6-7).¹⁰⁹ Troiolo cannot bear to be without "'l bel guardo soave/de'più begli occhi che si vider mai" (Fil., V.lxii.1-2), and he envies the mountains and the sea which are within sight of his lady (Fil., VII.lxiv-lxv).

There are thus four stages in the lovers' visual responses to each other: seeing and falling in love for the first time; the consequent desire to look into each other's eyes; the fulfilment of that desire; and the permanent separation with the consequent anguish at losing sight of the beloved. By and large it is the visual experience of Troiolo which is stressed. The use of vision to articulate the various stages of love has already been encountered as traditional practice in the poetry of Guillaume de Lorris and later French poets, but at each stage Boccaccio exceeds the bounds of custom, systematically making of vision a key element in the affair of Troiolo and Criseida. The clue to the reason for this promotion of what is, in more conventional works, a more formulaic and peripheral component, lies in the treatment of separation, a state in which the narrator also finds himself. He begs the reader:

... nell'abito appresso lagrimoso
 nel qual tu se', ti priego le dichiari
 negli altrui danni il mio viver noioso,
 li guai e li sospiri e' pianti amari
 ne' quali stato sono e sto doglioso,
 poi che de' suoi begli occhi i raggi chiari
 mi s'occultaron per la sua partenza,
 ché lieto sol vivea di lor presenza.

(Fil., IX.vi.1-8)

In other words, the absence of an emotional focus is caused by and is analogous to the lack of a visual one.

It is this intimate and mutual relation of vision and emotion that Boccaccio develops in Il Filostrato. The development takes the form of accentuating and elaborating moments of significant visual experience. When Troiolo sees Criseida for the first time, he does not do so through a 'tunnel' from which the rest of the visual world is excluded. There is careful attention to the particular physical circumstances of the event, to the array of contingent objects and people. In short, a sense of space is created and so the event ceases to be typical and becomes personal and unique. Criseida is in the first place visually evident, being dressed in black at a time when the earth is clothed in flowers; and her beauty is as remarkable as her dress (Fil., I.xviii.1-xix.6). She stands in the temple of Palladio "assai presso alla porta,/negli atti altiera, piacente ed accorta" (Fil., I.xix.7-8). Troiolo's movements and glances are random as he moves through the crowd (Fil., I.xx) and he mocks at "alcun che fiso rimarava/alcuna donna seco sospirando" (Fil., I.xxi.2-3). The blindness of his pride is shortly to be replaced by the blindness of love (Fil., I.xxv), for "l'occhio suo vago" (Fil., I.xxvi.5) looks by chance through a gap in the crowd to where Criseida is standing. The attention to visual detail here is remarkable and creates the sense that, had Troiolo not been in that particular position, looking in that particular direction at that particular time, then the rest of his adventure might never have unfolded. He sees standing there

... Criseida piacente,
sotto candido velo in bruno vesta
tra l'altre donne in sì solenne festa.

Ella era grande, ed alla sua grandezza
rispondeano li membri tutti quanti,
e 'l viso avea adorno di bellezza
celestiale, e nelli suoi sembianti
quivi mostrava una donnesca altezza;
e col braccio il mantel tolto davanti
s'avea dal viso, largo a sé facendo,
ed alquanto la calca rimuovendo.

Piacque quell'atto a Troiolo e 'l tornare
ch'ella fé 'n sé alquanto sdegnosetto,
quasi dicesse: "E'non ci si può stare".
E diessi a più mirare il suo aspetto,
il qual più ch'altro in sé degno li pare
di somma lode, e seco avea diletto
sommo tra uomo ed uom di mirar fiso
gli occhi lucenti e l'angelico viso.

(Fil., I.xxvi.6-xxviii.8)

In a moment of suspended time, Troiolo's gaze is transfixed and
with that his desire is aroused and directed entirely towards
Criseida.¹¹⁰

As if to call attention to the importance of perception in
the development of the love affair, Boccaccio has the two lovers
kissing each other's eyes when they first make love (Fil., III.
xxxvi); and in the course of his hymn to Love, Troiolo praises
the goddess's benign influence as a "lucente e virtuoso raggio"
(Fil., III.lxxxii.4), linking it causally to the visual rays which
pass between the lovers (Fil., III.lxxxiii). But the celebration
of love, expansive though it is, is short-lived. At the time of
their parting, Troiolo and Criseida gaze for the last time into
each other's eyes (Fil., V.xii.3) and Troiolo has already
anticipated that the joy and peace which his eyes provide will be
replaced by sadness. He speaks of their defeat when they can no
longer look at his lady:

O dolenti occhi, il cui conforto tutto
di Criseida nostra era nel viso,
che farete? Oramai in tristo lutto
sempre starete, poi da voi diviso

sarà, e 'l valor vostro fia distrutto
dal vostro lagrimar vinto e conquiso.
Invano omai vedrete altra virtute,
se el v'è la vostra salute.

(Fil., IV.xxxv)

Just as visual experiences cause emotion, so that emotion, once established, can affect perception. An image of Criseida is lodged in the mind of Troiolo and, once she has left Troy, he is subject to vain imaginings and the displeasing sight of other ladies:

e Criseida come suo Iddio
con gli occhi della mente ognor vedea,
or una cosa or altra immaginando
di lei, e spesso d'amor sospirando.

Ogni altra donna a veder gli era grave,
quantunque fosse valorosa e bella ...

(Fil., V.xlii.5-xliii.2)

After Criseida's departure, Troiolo becomes aware of the visual world in a new way. It is characterised by emptiness, by absence, by souvenirs of the past and by greater spaciousness. Troiolo can no longer enjoy the confines of his lady's embrace but must wander through an uncongenial world searching forlornly for an emotional and visual focus which is no longer there. The sight of Criseida's house with its windows and doors shut, an empty, dark enclosure, is a new source of despair. He is shut out of the joy and peace which Criseida brought:

... Lasso, quanto luminoso
eri luogo e piacevol, quando stava
in te quella biltà che 'l mio riposo
dentro degli occhi suoi tutto portava;
or se' rimaso oscuro senza lei,
né so se mai riaverla ti dei.

(Fil., V.liii.3-8)

From the house, Troiolo rides through the city remembering a private past that confers meaning on the external world. Various

specific places possess the sanctity of nostalgia for things
seen:

Quivi rider la vidi lietamente,
quivi la vidi verso me guardando,
quivi mi salutò benignamente,
quivi far festa e quivi star pensosa,
quivi la vidi a' miei sospir pietosa ...

(Fil., V.liv.4-8)

Empty space, and a growing emotional detachment, now separate
Criseida from Troiolo. She too gazes at the scene of their
affair, but in so doing she is gazing at the past as if it were
a discrete and distant object:

Ella mirava le mura di Troia,
e' palagi, le torri e le fortezze,
e dicea seco: "Oh me, quanta gioia,
quanto piacere e quanto di dolcezze
N'ebb'io già dentro, ed ora in trista noia
consumo qui le mie care bellezze! ..."

(Fil., VI.iv.1-6)

Troiolo can only see the present through the spectacles of the
past. He too, from the gates of Troy, gazes out with Pandaro
over the desolate expanse that separates him from Criseida. It
is the time for Criseida's return and their hope is such that
they take each approaching figure to be her:

E ciascun ch'era da costor veduto
venir ver loro, o solo o accompagnato,
che Criseida fosse era creduto,
fin ch'el non s'era a lor tanto appressato
ch'apertamente fosse conosciuto.
E così stetter mezzo di passato,
beffati spesso dalla lor credenza,
si come poi mostrava esperienza.

(Fil., VII.ii.)

Emotion continues to affect Troiolo's perceptions and there is a
growing dislocation between wished for sights and the brutal
truths of the objective world, a dislocation which becomes
pathetic when a cart is mistaken for Criseida (Fil., VII.viii.5-

ix.3)! In fact, Troilo is looking into a void not just of absence but also of betrayal:

Ma poco valse in su e 'n giù guardare,
ch'ad altri già l'avea dritto il pensiero;
di che costor, dopo molto badare,
sì come fatto avieno il dî primiero,
fatto già notte, dentro si tornaro,
ma ciò a Troiol fu soverchio amaro.

E la speranza lieta ch'egli avea,
quasi più non avea dove appiccarsi,
di che con seco molto si dolea,
e forte cominciò a rammaricarsi
e di lei e d'Amor, né gli pareo
per cagion nulla che tanto indugiarsi
dovesse a ritornare, avendogli essa
la ritornata con fede promessa.

(Fil., VII.xiv.3-xv.8)

As in Boccaccio, so in Chaucer. Troilus and Criseyde contains much the same emphasis on vision and space as occurs in Il Filostrato,¹¹¹ and in the French translation of Boccaccio which Chaucer also used, Le Roman de Troyle et de Criseida.¹¹² Troilus' first sight of Criseyde at the temple (TC, I.155-315); the desolation he experiences when looking at the empty house of Criseyde and the places which she has left vacant (TC, V.519-616); the long sorrowful perspective beyond the ramparts of Troy (TC, V.1100-83); and the general stress on the eyes of Criseyde and the "subtile stremes of hir yen" (TC, I.305) all follow the model of Boccaccio. The same end, of accentuating the particularity of Troilus' experience, is in view.¹¹³ Yet Chaucer is not merely following, in a servile and uncomprehending way, the work on which his own poem is based. He synchronises with passages on vision in love a new emphasis on the blindness and darkness that beset human emotions. Troilus' first sight of Criseyde occasions the apostrophe, elaborated by Chaucer, which begins, "O blynde world, O blynde entencioun" (TC, I.211).¹¹⁴

At other times he chooses to accentuate one aspect of a particular episode. For example, there is in Troilus, at the time of Criseyde's absence, a more extreme dislocation of the subjective and objective worlds. Boccaccio has Pandaro share Troiolo's preconceptions that Criseida will return. Chaucer, on the other hand, makes it clear that Pandarus is under no such illusions. When Criseyde does not appear on the appointed day

... in his herte he thoughte, and softe lough,
And to hymself ful sobreliche he seyde,
"From haselwode, there joly Robyn pleyde,
Shal come al that that thow abidest heere.
Ye, fare wel al the snow of ferne yere!"

(TC, V.1172-76)

The experience of Troilus in gazing forlornly from the city walls thus becomes more pathetic, more isolated and more intense.

Chaucer learnt from Boccaccio how to synchronise significant acts of vision with a heightened sense of space in order to create dramatic and emotional intensity, that impression of a unique event crucial to the individual's experience. The extent to which Chaucer absorbed Boccaccio's lesson can be seen in the second book of Troilus and Criseyde where he constructs a new scene according to Italian principles.¹¹⁵ It is the point at which Pandarus is engineering that Criseyde should see Troilus as he rides through the street outside. He has to manoeuvre his niece into a suitable position by the window, and calls Criseyde's attention to the house opposite. Responding to the enquiry, she is drawn towards the window and looks out (TC, II.1185-90). The conversation now turns to the letter which Troilus has just sent, but there is already beginning to build up a marked visual depth. Pandarus and Criseyde are in the foreground of an interior scene, positioned in the very window by

which Troilus is to pass. Beyond the window is the space of the street with a house visible on the opposite side. As at the temple, the rudiments of perspective are introduced as the atmosphere becomes charged with expectation.

Criseyde leaves the room to write a reply to Troilus. When she returns, Pandarus is still by the window - "he sat and loked into the strete" (TC, II.1227) - and Criseyde herself sits down next to him "on a stoon/Of jaspre, upon a quysshens gold-ybete" (TC, II.1228-29). This exotic, colourful object helps further to make the scene visually distinct and memorable. Pandarus congratulates Criseyde on accepting the love of Troilus. She is now psychologically prepared for the affair to develop and, right on cue, Troilus appears at the end of the street. He advances towards the observers:

... and thiderward gan bende
Ther as they sete, as was his way to wende
To paleis-ward ...
(TC, II.1250-52)

Pandarus spots the approaching knight, points him out to Criseyde, and urges her to stay. Troilus salutes Criseyde - "And up his look debonairly he caste" (TC, II.1259) - before passing on his way. The separating distance between the lovers has been crossed by mutual glances and it will not be long before the space which they share becomes more intimate.¹¹⁶

It was said earlier that Boccaccio uses vision and space to articulate the secular experience of love in a tangible world. Dante, on the other hand, uses the human experience of sight and space as an analogy of spiritual perception and enlargement. In Troilus and Criseyde, Chaucer welds together these two different approaches. The love which Troilus bears Criseyde,

unlike its counterpart in Il Filostrato, has a spiritual and universal dimension. It is at the end of the poem that the fusion of types of love becomes most evident when the soul of Troilus ascends to "the holughnesse of the eighthe spere" (TC, V.1809), there to look down, as Geoffrey had done in the House of Fame, at this "litel spot of erthe" (TC, V.1815) and its relative insignificance.

The pattern of influences is, at this point, particularly complex. Chaucer's primary source for the ascent of Troilus's spirit is a similar passage in Boccaccio's Teseida which describes the apotheosis of Arcita's soul:

Finito Arcita colei nominando
la qual nel mondo più che altro amava,
l'anima leve se ne g' volando
ver la concavità del cielo ottava,
degli elementi i convessi lasciando;
quivi le stelle ratiche ammirava,
l'ordine loro e la somma bellezza,
suoni ascoltando pien d'ogni dolcezza.

Quindi si volse in giù a rimirare
le cose abbandonate, e vide il poco
globo terreno, a cui intorno il mare
girava e l'aere e di sopra il foco,
e ogni cosa da nulla stimare
a rispetto del ciel; ma poi al loco
là dove aveva il suo corpo lasciato
gli occhi fermò alquanto rivoltato;

e seco rise de' pianti dolenti
della turba lernea, la vanitate
forte dannando dell'umane genti,
li quai, da tenebrosa cechitate
mattamente oscurati nelle menti,
seguon del mondo la falsa biltate,
lasciando il cielo; e quindi se ne gio
nel loco che Mercurio li sortio.

(Tes., XI.i-iii)¹¹⁷

Behind Boccaccio lies the influence of Dante, and especially that moment in the Paradiso (Par., XXI:133-59) when Dante turns to look down through the seven spheres at the little threshing-floor that

constitutes our world.¹¹⁸ There are reminiscences, too, of Macrobius and Boethius,¹¹⁹ while the whole notion of a celestial flight after death belongs to literary tradition.¹²⁰ The present interpretation of Troilus's ascent depends not so much on the precise nature of Chaucer's borrowings as on the way in which Chaucer's stanzas replace the personal sense of sight and space represented in the narrative with a thoroughly Dantean version of cosmic space and spiritual perception.

After his ascent, Troilus has knowledge, "ful avysement" (TC, V.1811), of an eternal and infinite world in which the merely physical aspects of vision and space are of little consequence; nothing more than "blynde lust" (TC, V.1824).¹²¹ He is vouchsafed, in every sense of the word, a new perspective on love: where there was anguish there is now harmony; where misery now happiness; where tragedy, now comedy.¹²² Distance lends a disenchantment to the eye that is untouched by regret or bitterness. The note of irony in Troilus's laughter as he looks down at those who weep for his death is a reflection of the central paradox of his experience: that in order to achieve a comprehensive spiritual insight into the nature of love, he had first to exist in and respond to the demands of a physical world. It is characteristic of Chaucer that he should seek to make an ironic and problematic blend of the very different visual and spatial approaches adopted by Boccaccio and Dante.

A word is used in the closing verses of Troilus and Criseyde to express the way in which the land, as seen from Troilus's vantage point, is surrounded by the sea: "Embraced" (TC, V.1816). The word is carefully chosen to recall the embraces of Troilus and Criseyde,¹²³ and it is appropriate at this point that the

opposed but ultimately reconcilable qualities of secular and cosmic love should be held in tension. Love, as Troilus discovered in the third book, is a universal principle of which private emotions are but a part. "Embraced", then, also expresses the containment of one sort of love by another, man's love of woman by God's love of man. Again, it is a word which describes the design of the Aristotelian universe which Troilus inhabits: man is at the centre of an enclosing or embracing hierarchy of spheres ultimately controlled by God. He is not merely rising and falling on the wheel of Fortune.¹²⁴ Troilus has thus moved, as he has been moving since the end of the third book, from a two- to a three-dimensional model of experience. "Embraced", therefore, has an unusual richness of meaning, deriving from its position at the end of the poem. It signifies 'loving containment of one thing by another' and as such is a spatial concept applicable to the human love of Troilus and Criseyde, to the harmony of the created world and its mutual relationships like those of land and sea, and to the structure of the divinely ordered universe. It is also applicable to the structure of the poem itself, which is spatially conceived as a concentric system of 'spheres'.¹²⁵ At the centre are the lovers, whose perpetual and mutual drive is to occupy each other's space, a private place from which even Pandarus is excluded.¹²⁶ Pandarus is aware of their trysting-places, but the city at large is unaware both of their love and the role of Pandarus within it. Troy contains all three protagonists but is in turn contained by the Greeks. It is clear that the volume of this outer 'sphere' contains the volume of all the others. The space embraced by the Greek encampment entirely penetrates that occupied by the

embrace of Troilus and Criseyde. . . But their small world is only a fraction of the besiegers', so that external circumstance, arbitrary events, the political situation are all potential threats to private bliss. The Greeks, in their turn, are surrounded by land, the land by the sea, it by air and then fire - the four elements through which Troilus passes. Other spheres revolve beyond the narrative: that of the narrator, who is 'outside' the story, controlling it while asserting he can do nothing about it; then Chaucer the poet, the creator of his own narrator, whose voice is heard in the closing lines; Troilus and Criseyde itself as a book destined to have an historical existence and reputation; and, beyond all other considerations, God himself to whom all love, all poetry, all history owes its existence. He alone is "Uncircumscrip, and al mayst circumscribe" (TC, V.1865).¹²⁷ It is indicative of the extent to which a Dantean vision has transformed the ending of the poem that the closing lines should be a direct translation from Paradiso (Par., XIV.28-30).

The Teseida, of course, as well as helping to transmit Dante to Chaucer, is also the major source of the Knight's Tale, and will be discussed as such in the course of a later chapter. It has been the object of the present chapter to describe the literary routes through which ideas about light, vision and space travelled to Chaucer and his audience. The prevailing impression is that French poetry was not as fruitful in this respect as Italian poetry. Guillaume de Lorris and the French love-poets, while elaborating and refining the traditional importance of vision in love, did little to anchor visual experience in a stable and realistic world. Jean de Meun responded with alacrity to the academic interest in optics, inserting a long discussion on that

subject in his part of the Roman, and made the metaphorical application of mirrors integral to its overall meaning and structure.

It was for Dante and Boccaccio to make the fullest capital from the awakening of interest in the science of perspectiva. This is appropriate in a country alive to the creative possibilities of optical ideas, whose artists of the same era, as a later chapter will show, were evolving new techniques of pictorial space. Dante, possessing a full knowledge of scientific optics, offered a consistent and detailed account of perceptual experience, and at the same time ensured that its various aspects were intimately connected with the symbolic meaning of the Commedia. Boccaccio, for his part, took the major step of integrating visual conventions with a wider experiential world than that normally found in French love poetry. Both he and Dante brought the poetic treatment of vision into the light of day by making it an important feature of narrative composition.

Chaucer drew strength and inspiration from these influential precedents, but it is evident from previous, partial examinations of his poetry that his representation of the visual world had its own rationales and intentions. In the next four chapters, some of the structures and functions of light, vision and space are explored in relation to the narratives of Fragment VIII and Fragment I of the Canterbury Tales.

CHAPTER 5:

THE 'CANTERBURY TALES', FRAGMENT VIII -
THE 'SECOND NUN'S PROLOGUE AND TALE'
AND 'CANON'S YEOMAN'S PROLOGUE AND TALE'

A. INTRODUCTION

(i) General Approach

The second ~~part~~ of this thesis concerns two Fragments of the Canterbury Tales. The intention is to examine in five narratives Chaucer's treatment of light, vision and space. Although the optical tradition will be kept firmly in mind, the analysis of Chaucer's poetry will now be restricted to literary appraisal. Special attention will be given to the relations between Chaucer and his narrative sources in order to reveal what is characteristic about his treatment of optical matters. Due consideration will also be given to relevant critical writings. In these ways, it will be shown that the visual world which Chaucer creates is both attuned to the contemporary state of perceptual awareness, and integrated with the thematic concerns of his poetry.

The selection of Fragments rather than isolated Tales allows for the discussion of optical themes to be pursued in the relations between connected narratives. The narratives and link of Fragment VIII will be considered first because the Second Nun's Prologue and Tale and Canon Yeoman's Prologue and Tale conveniently express three distinct attitudes towards the visual world. The first Tale adopts an extreme of conceptualism, the second an extreme of perceptualism, while the link forms a median point of common-sense naturalism. The Fragment thus helps to establish a range of possible representations of visual reality, and to prepare the ground for the rather more complex mixture of responses found in Fragment I.

(ii) Fragment VIII

Over the past twenty years critics have gradually realised that the two Tales of Fragment VIII of the Canterbury Tales, although the ethos of one is opposed to that of the other, explore common themes. Writing in 1957, Charles Muscatine¹ observed that it is not coincidental that the Canon's Yeoman's Tale follows the Second Nun's Tale, and he detected a sufficient degree of contrast between the poems to indicate a deliberate aesthetic act in the placing of them side by side,² an act generally designed to reveal the differences between a spiritual world and a materialistic one. A few years later, in an unpublished dissertation, J.E. Grennen demonstrated more fully that the two Tales are both parts of "the same basic vision".³ Images of unity, wisdom, faith and good works in the Second Nun's Tale oppose those of multiplicity, folly, credulousness and misguided work in the Canon's Yeoman's Tale. In subsequent articles⁴ Grennen explored in some detail 'multiplying', 'work', the philosopher's stone and fire in alchemical practice, arguing that their significance in the second Tale derives from the treatment of allied concepts in the first. More recently, Bruce A. Rosenberg⁵ has made some interesting observations on the crucible-like nature of Cecilia's bath, on epithets of burning in the saint's legend and on colour contrasts in the two Tales; and K.M. Olmert,⁶ in an exploration of the moral dimensions of the Canon's Yeoman's Tale, has drawn attention to contrasting ideas of "busyness", "pryvetee", miracles and faith.

These writers draw attention to the importance of vision in Fragment VIII and to the polarising of two attitudes towards the physical world. For example, Muscatine characterised the Canon's

Yeoman's Tale as consisting of "blind materialism"⁷ without a glimmer of spirituality, where everything is lost in a clutter of objects. Grennen noted that accusations of blindness are an alchemical commonplace, and that the idea of wisdom in the Second Nun's Tale is most frequently expressed through images of spiritual sight.⁸ In a fairly extended treatment of the topic, Rosenberg stated that "The paradoxical aspects of vision are vital to the tales".⁹

B. THE 'SECOND NUN'S PROLOGUE AND TALE'

(i) Sources

Chaucer derived the content of the Second Nun's Tale from a version of the life of St. Cecilia which was similar to the account in the Legenda Aurea of Jacobus de Voragine (d. c.1298), a collection of saints' lives which enjoyed a wide circulation throughout Europe. At about line VIII.345 Chaucer switches to a more elaborate Passio S. Caecilia while at the same time developing a less literal treatment of the narrative.¹⁰ Throughout the Tale there is an extremely close rendering of the sources and it is needless to doubt Chaucer's words:

I have heer doon my feithful bisyness
After the legende, in translacioun
Right of thy glorious lyf and passioun ...
(SNP, VIII.24-26)¹¹

To the Tale proper are prefaced four stanzas on idleness (SNP, VIII.1-28), an Invocatio ad Mariam (SNP, VIII.29-84) and the Interpretacio nominis Cecilie (SNP, VIII.85-119). Chaucer is responsible for adding the first two of these introductory passages while an etymological passage is found in the Latin source. The stanzas on idleness are conventional¹² though not arbitrarily chosen, since the theme is found in the legend.¹³ The Invocation to Mary is a reworking of St Bernard's prayer in the last canto of Dante's Paradiso, and the influences of liturgical and lay prayers, of Macrobius' Somnium Scipionis and of the Anticlaudianus of Alan of Lille are also felt.¹⁴

In view of its almost wholly derivative nature, the Second Nun's Tale together with its Prologue have been considered early works. There has been no real deviation from the conjectural date

of 1375.¹⁵ The poem is believed to have been recruited to the Canterbury Tales without much, if any, alteration.¹⁶ It has been accredited with literary value as a juvenile example of Chaucer's versification,¹⁷ but critics have fought shy of discussing the themes of the Tale since they derive from the legend tradition rather than from deliberate authorial intervention.¹⁸ It has been noted, however, that the introductory stanzas do establish certain emphases in the narrative that might otherwise not be there.¹⁹

The value of the Second Nun's Tale lies precisely in its relative freedom from Chaucerian manipulation. It expresses a certain type of religious sensibility current in the middle ages, and therefore provides a contrast with other more idiosyncratic attitudes represented by Chaucer. It is indeed no accident that this 'typically medieval' Tale should appear in a Fragment side by side with one, at the other end of Chaucer's poetic chronology,²⁰ that depends on a good deal of original invention. For the themes of the Second Nun's Tale only become of real interest when their connection with those of the Canon's Yeoman's Tale is realised, and it is in the context of Fragment VIII, rather than on its own terms, that the Legend of St Cecilia finds its raison d'être. Not least remarkable about the two Tales is their common, or rather antithetical, response to the physical world.

(ii) Places and People

There is very little sense of location in the Second Nun's Tale. Cecilia "Was comen of Romayns" (SNT, VIII.121), but little is done to envisage the early Christian setting. Cecilia tells Valerian her husband to go to the Via Appia "That fro this toun ne stant

but miles three" (SNT, VIII.173). Chaucer has mistranslated his source here, in which Valerian is instructed to go to the third milestone on the Via Appia.²¹ The poem's lack of interest in accurate renderings of places and their relations and its relative disregard for exact topographical detail is thus fortuitously aggravated.

The place to which Valerian is sent does have some distinguishing atmosphere. There is an impression of the early church existing as a secret and underground organisation. Valerian is first to enquire of "the povre folkes that ther dwelle" (SNT, VIII.174) of Pope Urban's whereabouts. Having arrived at this place he discovers Urban lurking in the burial places of the saints: "Among the seintes buryeles lotynge" (SNT, VIII.186). The elusiveness of Urban at a time of persecution is further indicated by Tiburce:

'Ne menestow nat Urban,' quod he tho,
'That is so ofte dampned to be deed,
And woneth in halkes alwey to and fro
And dar nat ones putte forth his heed?'

(SNT, VIII.309-12)

The sort of obscure and half-concealed place which Urban is likely to haunt is therefore given some attention. But the descriptive emphasis, such as it is, is probably quite arbitrary and certainly misplaced, for the most significant place in the legend is Cecilia's house, the place both of her visions and her martyrdom. Her dying wish is that it should be dedicated as a church and Urban hallows it accordingly after burying Cecilia secretly at night among the saints (SNT, VIII.545-51). The closing lines suggest that the church so established still stands (SNT, VIII.552-53). The legend would therefore seem to be making a statement about the

establishment of the Church as a perpetual institution at a time of great adversity. It would have aided such a concern to give descriptive priority to the building that epitomises the Church's triumph; not, as is the case, to the insecure circumstances of its early hallowed places. But the legend does not admit of such aesthetic interests. On one occasion, the interior of Cecilia's house is mentioned, when Valerian returns to witness her with an angel "Withinne his chambre" (SNT, VIII.219). This is evidently the scene of their wedding night encounter (SNT, VIII.141-42), but neither the room nor the house is realised in concrete terms.

It may be argued that the house-cum-church is given substance by the vivid accounts of the angel's presentation of two crowns to Valerian and Cecilia (SNT, VIII.218-34) and her martyrdom (SNT, VIII.512-46). The inference is false since the events at the house have only an associative effect; they do not in any way enhance the purely material quality of the location. In the legend, what happens is more important than where it happens, although particular events can as it were sanctify or give spiritual resonance to the contingent circumstances. Valerian wishes that his brother should "know the trouthe, as I do in this place" (SNT, VIII.238). Of course he is wishing for spiritual enlightenment, not a greater awareness of the physical environment.

There are several other places in the Second Nun's Tale, but they flicker past the reader's eye devoid of individuality and interest. There is the house of Maximus, the officer in charge of Valerius and Tiburce, which Cecilia visits at night to inspire her husband and his brother with courage (SNT, VIII.367-90). They are taken to "the place" where they must worship pagan gods or die

(SNT, VIII.393-99). The definite article suggests that a public place is intended.²² Finally, Cecilia is brought before Almachius the prefect (SNT, VIII.421-22) as were Valerius and Tiburce (SNT, VIII.361-62) but the nature of the location is not described. In addition to the nondescript quality of the different locales, there is a complete absence of personal detail. The individual appearance of the main individuals is nowhere described.

(iii) The Inner and Outer Eye

This neglect of the material world in the Second Nun's Tale is, in terms of the legend, quite correct. Its point of view is not terrestrial but other-worldly; the place to which it attaches utmost importance is not to be found in the material present for "ther is bettre lif in oother place" (SNT, VIII.323). The Christians of the legend have their minds set on religious truth and the difference between their belief and that of the unconverted is represented in terms of sight.²³ The Christian literally sees truth in the form of visions while the pagan cannot see beyond the substance of his idols. An opposition is thus set up between the perception of religious truth and blindness to it; between the spiritual insights of the inner eye and the limited perspective of the outer eye. Supporting the Christians' experiences is the notion that Christ made the revelation of truth possible through his presence on earth. The physical world was sanctified through the Incarnation. This paradox - that the vision of truth is to be seen in an essentially sinful world, that spiritual fulfilment depends initially on a material existence - creates a tension in the legend between the two ways of seeing, which are used as an epitome of the choice between good and evil, between Christianity

and paganism.

In the introductory stanzas of the Second Nun's Tale there is some preparation for the theological background of the legend and for the perceptual choices with which the participants are faced. The Invocatio deals inevitably with the Incarnation. Christ as eternal love and peace is described as taking man's shape "Withinne the cloistre blisful of thy sydis" (SNP, VIII.43-44). Chaucer then deviates from Dante, his source at this point,²⁴ to address Christ:

That of the tryne compas lord and gyde is,
Whom erthe and see and hevене, out of relees,
Ay heryen ...

(SNP, VIII.45-47)²⁵

Skeat translates the first of these lines: 'Who is Lord and Guide of the threefold space'.²⁶ The sanctification of the universe at the Incarnation prompts the praise of God by earth, sea and heaven with the implication that man, in whose form Christ came, should therefore respond in the same way. The response demanded of man by the fact of the Incarnation is the substance of Cecilia's teaching of Tiburce (SNT, VIII.320-48) and lays the basis for his choice between accepting and seeing its truth or continuing to be blind.

The difficulty of embracing religious truth is, again, a subject first broached in the Invocatio. The material world is dark (SNP, VIII.64-66)²⁷ and, in lines similar to some found in Macrobius,²⁸ the body itself is seen as a prison and source of disease, entrapping the soul until illuminated by the grace of the Virgin:²⁹

And of thy light my soule in prison lighte,
That troubled is by the contagioun
Of my body, and also by the wighte
Of erthely luste and fals affecioun ...

(SNP, VIII.71-74)

The theme is articulated further in the case of Tiburce, whose reaction when instructed to seek Urban is prompted by self-preservation: Urban is an outlaw and anyone found associating with him will be burned (SNT, VIII.313-15). The search for truth is absurd in Tiburce's view if it leads to death:

And whil we seken thilke divinitee
That is yhid in hevене pryvely,
Algate ybrend in this world shul we be!

(SNT, VIII.316-18)

He is at this point placing too much value on physical existence. He is spiritually blind, but after being persuaded by Cecilia to visit Urban, he is able to see the truth as well as she or Valerian and he then values his life little enough to sacrifice it.

The etymologies of the name Cecilia with which the Tale begins introduce the idea that there is a way of apprehending experience altogether different from mere physiological perception.³⁰

Cecilia is "the wey to blinde" or a path for the blind, opening their eyes to truth "For she ensample was by good techynge" (SNP, VIII.92-93); alternatively her name means 'lacking blindness', "for hir grete light/Of sapience, and for hire thewes cleere" (SNP, VIII.100-1). Cecilia therefore perceives truth herself, and by the light of her example shows others how to see truth for themselves. Just as the sun and moon and stars shine out in heaven,³²

Right so men goostly in this mayden free
Seyen of feith the magnanymytee,
And eek the cleernesse hool of sapience,
And sondry werkes, brighte of excellence.

(SNP, VIII.109-12)

Initially it is only Cecilia who is endowed with the ability to see what others cannot. She tells Valerian on their wedding night that a guardian angel will slay him if her chastity is

threatened (SNT, VIII.141-61). Valerian demands to see the angel as proof of its existence, for as a pagan he cannot perceive it (SNT, VIII.163-71). After visiting Pope Urban he accepts the Christian faith³³ and, returning to Cecilia's house, discovers with her an angel bearing two crowns made of the lilies of chastity and the roses of martyrdom.³⁴ The crowns are brought from Paradise and are not, like earthly flowers, subject to decay or loss of perfume (SNT, VIII.227-29). The conditions of seeing them are spelled out by the angel; any witness of their existence must have accepted the Christian mode of life:

Ne nevere wight shal seen hem with his ye,
But he be chaast and hate vileynye.

(SNT, VIII.230-31)

The crowns and the angel are extra-terrestrial, yet they are seen on earth. Valerian acknowledges the duality of his experience when he asks the angel to help his brother "To knowe the trouthe, as I do in this place" (SNT, VIII.238). Tiburce, on his arrival, is able to smell the roses and the lilies of the crowns as a consequence of Valerian's prayer on his behalf (SNT, VIII.256); here again, the experience is both sensual and spiritual, the sweet smell, unusual "this tyme of the yeer" (SNT, VIII.246), becoming a metaphor of divine grace:

The sweete smel that in myn herte I fynde
Hath chaunged me al in another kynde.

(SNT, VIII.251-52)

Valerian's prayer does not, however, make it possible for his brother to see the crowns: "thyne yen han no myght to see" (SNT, VIII.255). To see them he must be converted (SNT, VIII.267-69), "Bileve aright and knowen verray trouth" (SNT, VIII.259). The process of conversion involves a radical reorientation towards

experience. Tiburce, on smelling the crowns and hearing of their origin, thinks that he is losing his hold on reality: "Seistow this to me/In sothnesse, or in dreem I herkne this?" (SNT, VIII. 260-61). Valerian's response is to say that the physical world is itself a dream; reality is Christian truth:

'In dremes,' quod Valerian, 'han we be
Unto this tyme, brother myn, ywis.'

(SNT, VIII.262-63)

In renouncing the pagan world, Tiburce must adopt a new approach towards the perceptual world. Idols must be abandoned and recognised as vanities (SNT, VIII.267-69 and 284-85); then can the angel of God, and hence truth, be seen (SNT, VIII.299-301). Although seeing the angel is equated with perceiving truth, the experience of visions is not just an image of divine illumination. The Christian encounters truth in the material universe. After he accepts the faith³⁵

... Tiburce gat swich grace
That every day he saugh, in tyme and space,
The aungel of God ...

(SNT, VIII.354-56)

It is in the confrontation between the prefect Almachius and Cecilia that the difference between external and internal perception is stated most forcefully. Cecilia accuses her persecutor of blindness because he fails to see that the images he worships are only stone. His eyes have deceived him and so Cecilia advises him to use his other senses:

Ther lakketh no thyng to thyne outter yēn
That thou n'art blynd; for thyng that we seen alle
That it is stoon, - that men may wel espyen, -
That ilke stoon a god thow wolt it calle.
I rede thee, lat thyn hand upon it falle,
And taste it wel, and stoon thou shalt it fynde,
Syn that thou seest nat with thyne eyen blynde.

(SNT, VIII.498-504).

Cecilia's point of view, though trained on matters celestial, is in this sense more realistic in that it does not deify the world of sense. A stone is a stone. And there is a sublime irony in the fact that one of those least concerned with the material present should finally experience it most acutely, through torture. The closing scene (SNT, VIII.516-49) is the most vivid and materialistic of the entire legend. It is the ultimate test of Cecilia's conviction that the world of sense is worthless in the light of the truth she possesses. She renders her tortures ineffectual: by remaining cold in a bath of boiling water and by continuing to teach the faith while she bleeds to death. This triumph over physical torment gives one last reinforcement to Cecilia's faith in what the pagans cannot see.

The Second Nun's Tale thus offers an approach to perceptual experience that represents the physical world as deceptive and valueless in itself. The correct perspective, according to the legend, is not one acquired through the outer eye of the body, but through the inner eye of the soul. The acceptance of Christianity allows the convert to see a form of truth denied to others, and one that sets little store by material reality. At the same time, this truth is experienced in the world of sense so that the presence and value of such a world is not denied; but the legend can have no interest in exploring its dimensions when its priority is an abstract quantity, religious truth.

All this is distinctively Christian, distinctively medieval. By accepting the legend of St Cecilia into the Canterbury Tales, Chaucer has indicated one traditional interpretation of the nature of experience, and particularly of perceptual experience. The Second Nun's Tale raises the question of the truth of what the

eye sees and suggests that the eye sees what the mind or soul wants it to. Almachius sees his idol as something more than a stone; Cecilia calls it a stone and perceives visions denied to Almachius. Believing is seeing. This theme is not exclusively Chaucer's - it is traditional, and inherited along with the narrative³⁶ - but the legend's handling of the psychology of perception introduces a topic that is further explored in the Canon's Yeoman's Prologue and Tale.

C. THE LINK: THE 'CANON'S YEOMAN'S PROLOGUE'

(i) The Reality of the Pilgrimage

The link between the Tales of the Second Nun and the Canon's Yeoman, whether it is seen as a prologue or introduction to the Canon's Yeoman's Tale,³⁷ shakes the reader out of the spiritualised world of St Cecilia and into the reality of the pilgrimage. Suddenly the circumstances of the narration are made concrete, the point of view shifts abruptly to that of Chaucer the pilgrim, and the precipitate arrival of the Canon and his Yeoman seems to stimulate a fresh interest in visual detail. The effect of this rapid switch to new surroundings is to frame - but not to isolate - the world of religious truth embodied in the legend. But it also has a similar effect on the apparently more down-to-earth circumstance of the Canon's Yeoman's Tale. In fact, the world of the second Tale in the Fragment is as unreal as the visionary world of the legend. The intervening section, then, plays a vital role in providing some reference point, a common-sense position, from which the natures of two contrasting worlds can be assessed. It may be for this reason, of allowing his audience to get its bearings, that Chaucer has invested this particular link with an unusual degree of verisimilitude. It is one of those occasions on which the material circumstances of the pilgrimage come alive.³⁸ At the same time it sustains the themes which are given expression in the two Tales placed at either side. The link thus functions in a complex way, but in a way that contributes to the unity of the Fragment.

The very arrival of two latecomers, approaching from outside, gives both them and the pilgrims as a group some definition: the

newcomers have seen the pilgrims and the pilgrims see them. Chaucer refers to the band of travellers corporately: "Er we hadde riden fully fyve mile" (CYP, VIII.555), and throughout the opening description of the Canon and his Yeoman (CYP, VIII.556-81) a sense of distance is maintained. During this time they are in the process of overtaking the pilgrims but are evidently near enough to be seen in some detail. First "us gan atake/ A man" (CYP, VIII.556-57), then follow the descriptive lines, until the Canon finally catches up: "And whan that he was come, he gan to crye" (CYP, VIII.582). The Canon hails the pilgrims as a group, "this joly compaignye!" (CYP, VIII.583). He explains that he has been riding fast to overtake them in order to join them, and again refers to the group in a way that characterises it as companionable, social. He wants "To riden in this myrie compaignye" (CYP, VIII.586). The Yeoman explains how he and his master resolved to catch them up: "now in the morwe-tyde/Out of youre hostelrie I saugh yow ryde" (CYP, VIII.588-89). The speed with which the newcomers approach, contrasted with the leisurely progress of the pilgrims (CYP, VIII.623), further helps to mark off the group of travellers as distinct.

Once they have joined the group the Canon, at least, does not stay still. As the Yeoman confesses to the falsity of alchemy "This Chanoun drough hym neer, and herde al thyng/Which that this Yeman spak" (CYP, VIII.685-86). His suspicion is attributed to guilt in an adage from Cato (CYP, VIII.688-89), so that Chaucer's reemphasis of his movement marks him out as culpable of precisely that charlatanism which his Yeoman has outlined. It was because he was guilty of duping people that "he gan so ny him drawe/To his Yeman, to herknen al his sawe" (CYP, VIII.690-91).

When the Yeoman refuses to stop his revelations about the true nature of alchemy, the Canon can take no more: "He fledde away for verray sorwe and shame" (CYP, VIII.702). Again, distance is put between the group of pilgrims and an outsider, but this time a former outsider has become a member of the group and the Yeoman's integration with it is established through his telling a tale, a condition for membership which the Host is eager to ascertain in the case of the Canon (CYP, VIII.597-98). The Yeoman is glad to be rid of his master:

For nevere heerafter wol I with hym meete
For peny ne for pound, I yow biheete!

(CYP, VIII.706-7)

Not since the closing passages of the General Prologue has the corporate identity of the pilgrims been brought into such sharp focus.³⁹ The fact is not without significance. The Canon is in many ways an outcast, living on the fringes of society (CYP, VIII.657-62). His dogged pursuit of alchemy is the cause, just as it is the cause of his exile from the microcosmic society of the pilgrim group. It is a self-imposed exile, one that stems from a refusal to acknowledge the truth of his servant's confession. The secrecy he ineffectually demands of the Yeoman is revealed not as a means of protecting esoteric lore, but as a mask for villainy. This refusal to countenance honesty is mirrored in the restless movement of the Canon within the pilgrim group, leading to his final flight. It is expressive too of a refusal to accept himself and what he has become. At the same time there does seem to be in the Canon's pursuit of the pilgrims and in the nature of his references to them as "merry" and "joly" a desire to become integrated, to belong to society by finding

acceptance with them. There may even be the glimmer of a desire to expiate his sins through an act of pilgrimage. Certainly the Yeoman successfully achieves this by confessing and renouncing his past and the pilgrimage continues with an additional, incorporated member.

Not only is the identity of the group of pilgrims accentuated but also their position and progress along the road to Canterbury. The point at which the incident occurs is given a precise reference. It is "Er we hadde riden fully fyve mile,/At Boghtoun under Blee" (CYP, VIII.555-56). This distance between the last resting-place⁴⁰ and the point of meeting with the Canon and Yeoman is given added emphasis through the fact that it is exactly the same ground that has to be covered by the outsiders (CYP, VIII.583-92). As well as this glance over the shoulder to the place of departure there is an anticipation of the place of arrival. Speaking of his master's alleged prowess, the Yeoman claims:

...al this ground on which we been ridyng,
Til that we come to Caunterbury toun,
He koude al clene turne it up-so-doun,
And pave it al of silver and of gold.

(CYP, VIII.623-26)

In these ways, attention is brought to bear on the progress of the journey, a stopping-place, the goal, the road itself and the means of travel. But the perspective is a little wider than that of the itinerary. There is in the suggestion of the Yeoman of what his master could do with the road a rather alarming sense of the illusory nature of the material world: it can be subject to transmutation. Although the claim is false, for a fleeting moment it seems as if the ground might be made to go from under the pilgrims' feet, and one is led to ask: in what does the 'reality'

of the pilgrimage lie? Does it have merely a representational truth, as a record of the events and progress of a journey from London to Canterbury? Does it have a metaphorical truth as an image of an interior spiritual journey? What is the relation between the contrived artifice of Chaucer's poetry and the illusion of actuality he, particularly here, creates? These considerations are rapidly undercut by the Host's pointed question about the Canon: if he can transform the road to precious metal, why is he dressed like a scarecrow? (CYP, VIII. 627-39), but not before the idea of pilgrimage in its wider senses has been raised.

Chaucer's descriptive precision in this account of part of the pilgrimage is unusual in terms of the other links in the Canterbury Tales. It is exceptionally striking appearing as it does after the Second Nun's Tale, to which it is forcefully tied with "When ended was the lyf of Seinte Cecile" (CYP, VIII.554). The anonymity of place and the neglect of organic space of the legend is replaced by a world in which specific circumstances are given weight and where the third dimension is an essential component part. It is the continuous world of everyday experience from which the special, discrete universes of the two surrounding Tales can be entered, explored and left. It is a world recognisable to the reader as being the one in which he himself lives: its physical nature, whatever meaning it might assume, is the same one as that he encounters around himself. This impression is conveyed through the response of the pilgrim narrator.

(ii) Common-Sense Vision

Of first importance is the fact that the material of the link is presented through an observant, interested and responsive eye.⁴¹ The sweat on the Canon's horse "wonder was to see" (CYP, VIII.560) and the enclosing lines set out the details of the riders' appearance. Towards the end of the description a similar detail is repeated, this time of the Canon himself: "But it was joye for to seen him swete!" (CYP, VIII.579). The eye has returned, as it will, to a detail that has caught its attention. It is of interest that the Canon's array is consistently presented as something seen at that particular time not, as in the case of some General Prologue portraits, as the result of 'observations' that suggest authorial omniscience rather than immediate perceptual response. There is a visual integrity about this portrait.⁴² What the narrator first notices are the more general items. The Canon is clothed in black and underneath wears a white surplice. His horse which sweats so much is a "hakenay" and coloured "pomely gris" (CYP, VIII.557-60).⁴³ The Yeoman's horse, too, is in a lather and exhausted. The foam is excessive, "ful hye" about the collar, and the Canon himself is flecked with white foam like a magpie (CYP, VIII.562-65).⁴⁴ The narrator begins, therefore, by picking out detail that is more immediately noticeable. There follows a more close observation of the newcomer's array. Keeping his eyes on the Canon, the narrator remarks that he is travelling with a minimum of luggage - there is but a double saddlebag fastened to the crupper (CYP, VIII.566-68) - and he perceives that his cloak and hood are fastened together and that his hat is hanging at his back by a lanyard (CYP, VIII.571 and 574). Under the hood is a burdock

leaf to keep him cool, for the Canon is sweating copiously as well, especially on his forehead (CYP, VIII.577-81).⁴⁵

The presentation of the Canon and his Yeoman is not confined to a catalogue of detail that becomes progressively more particular. It is interspersed with interpretative remarks and this gives a very clear impression of an enquiring, interested and perceptive intelligence which is receiving the visual information and drawing conclusions from it somewhat in the manner recommended by the Yeoman himself at the end of his Tale (CYT, VIII.1418-19). The interpretations have about them a ruminative or tentative quality as if the observer's inferences remain to be confirmed in the light of further information. Thus on seeing the sweat on the Canon's horse, the narrator posits that he must have ridden some distance: "It semed as he had priked miles three" (CYP, VIII.561); on the absence of any luggage he remarks that "It semed that he caried lite array" (CYP, VIII.567); and on the basis of the Canon's hood being sewn to his cloak: "I demed him som chanoun for to be" (CYP, VIII.573).⁴⁶ As the account progresses, the narrator gathers confidence in his explanations of the Canon's appearance. He finds further evidence of hard riding in the position of the Canon's hat, which has fallen from his head, and states without any cautious "It semed":

For he hadde riden more than trot or pass;
He hadde ay priked lik as he were wood.

CYP, VIII.575-76)

The need to interpret visual evidence, and to look more closely until it forms a coherent picture, is stimulated by a lively curiosity on the part of the narrator. He gives an account of

the thought processes which are set off by the Canon's initially enigmatic appearance:

And in myn herte wondren I bigan
What that he was, til that I understood
How that his cloke was sowed to his hood;
For which, when I hadde longe avysed me,
I demed him som chanoun for to be.

(CYP, VIII.569-73)

The progression from curiosity, to more careful inspection, to conclusion, registers the presence of an enquiring mind alert to visual stimuli and - what is most important for the relation of the link to the two Tales - it is not a mind conditioned to have extraordinary perceptions in any way. It is not bent on Vision but on vision; it is not obsessed with the material world but responds naturally. The psychological normality with which Chaucer invests his alter ego is not the narrator's sole preserve. It informs too the response of the Host to the Canon and, by extension, the whole world of the pilgrimage. Harry Bailly finds that the Yeoman's claims for his master's prowess in conjuring precious metals from base materials do not square with the Canon's appearance. He adds a further item to the Canon's array when he observes:

His overslope nys nat worth a myte,
As in effect, to hym, so moot I go!
It is a budy and totore also.
Why is thy lord so sluttissh, I thee preye,
And is of power bettre clooth to beye,
If that his dede accorde with thy speche?

(CYP, VIII.633-38)

The Yeoman has no satisfactory answer to this (CYP, VIII.640-51) and the fact that the Canon is a mountebank stands revealed. It is as if the practice of illusion and self-delusion cannot long survive under the objective gaze of a public world.⁴⁷

It is clear, then, that the physical world of the pilgrimage as represented in Fragment VIII is radically different from that of the Second Nun's Tale and distinct too from that of the Canon's Yeoman's Tale. The link itself encourages a comparison of Cecilia's and the alchemist's worlds, certainly by providing a common-sense mean from which they can be assessed, but also by suggesting some of the contrasting attitudes to physical reality. The Canon's Yeoman confesses that "To muchel folk we doon illusioun" (CYP, VIII.673) when they appear to make gold double in quantity (CYP, VIII.674-77), while Cecilia argues that the physical world is by its nature deceptive (CYP, VIII.498-504). The essence of the alchemist's art is to 'multiply' in material terms (CYP, VIII.669) but Cecilia's objective is spiritual oneness (CYP, VIII.113-19). The fire that discolours the Yeoman's face in his unsuccessful attempts to fabricate gold (CYP, VIII.666-67) is in the preceding Tale unable to blemish the saint; and where the multipliers sweat, she remains cool (CYP, VIII.519-25). The early Christians are led through persecution to live on the fringes of society but the alchemists must do so because theirs is a dishonest way of life. The societies which shun them have changed from paganism to Christianity. The following lines echo Pope Urban's "lotynge" among the burial-ground of the saints. The Host has asked the Yeoman where he and his master dwell:

'In the suburbes of a toun,' quod he,
 'Lurkyng in hernes and in lanes blynde,
 Whereas thise robbours and thise theves by kynde
 Holden hir privee fereful residence,
 As they that dar nat shewen hir presence;
 So faren we, if I shal seye the sothe.'

(CYP, VIII.657-62)

The blind alleys, the impermanence, the unsuccessful groping after

'science', the frenzied work and motion (CYP, VIII.678-83) all gain meaning by the side of the insight, the purposeful striving for eternity, the deliberate and satisfying 'besynesse' of the Second Nun's Tale.

D. THE 'CANON'S YEOMAN'S TALE'

(i) Materialism and Ignorance

By contrast with the Second Nun's Tale, the forming hand of Chaucer is evident throughout the Prologue and Tale of the Canon's Yeoman. So much so that its apparent hostility towards alchemy has been read, on the basis of circumstantial evidence, as a product of some direct and unfortunate experience.⁴⁸ This seems unlikely. Although no single analogue has come to light that includes all the elements of Chaucer's poem, various writings on alchemy, both from a technical and critical point of view, provide sufficient precedents.⁴⁹ It is probable, for example, that Chaucer's technical knowledge derives not from personal experiment but from the writings of Vincent of Beauvais.⁵⁰ Exhortations to secrecy, the need for ceaseless study, for trusty associates and other attitudes struck in the Tale have been identified as topoi of the alchemical treatises.⁵¹ Of these, Chaucer may well have been familiar with the works of Geber;⁵² certainly he was acquainted with the writings of Arnold of Villanova.⁵³ And condemnations of false alchemy are to be found, as well as in the more specialised texts, in ecclesiastical writings.⁵⁴ Chaucer picks his way through this welter of material with a skill that is unfortunately not always emulated by scholars.⁵⁵ From seemingly intractable pseudo-scientific lore he selects the components which combine in a unified literary work that explores certain themes with which the Fragment as a whole is concerned.⁵⁶

One of the first impressions of the Canon's Yeoman's Tale is that it portrays a world rich in materials and objects. Prima pars contains a compressed account of the apparatus, substances, theory

and practice of alchemy. But instead of suggesting a stable and coherent environment, the overall effect is one of confusion, a constant shifting and transmutation of forms, a profound insecurity about the nature of physical reality. This effect can be traced to a number of sources: the mesmerising quality of the Canon's Yeoman's lists; the ignorance and air of futility he displays in his comments on 'multiplying'; and the repeated failures of his master to make any sense out of the equipment and chemicals at his disposal.

The listing of substances and apparatus is a commonplace of the alchemical treatises.⁵⁷ But the inventory of Chaucer's Yeoman has a deleterious effect on the reader's grasp of what their nature and function might be. The list of chemicals and herbs is arranged in a haphazard way with the

... sondry vessels maad of erthe and glas,
Oure urynales and oure descensories,
Violes, crosletz, and sublymatories,
Cucurbites, and alembikes eek ...
(CYT, VIII.791-94)⁵⁸

The list gathers momentum and includes further passing references to other objects: "fourneys eek of calcinacioun" (CYT, VIII.804) and "yngottes, testes, and many mo" (CYT, VIII.818).⁵⁹ There is no inherent reason, of course, why a list should of itself bring to the mind's eye a physical context for its subject matter. But it ought to obey some principle of organisation; its purpose is to consolidate information. But in this instance the absence of any rationale signals a basic confusion that goes further than disorganisation.⁶⁰ Although they are given names and are superficially impressive the items have little meaning.⁶¹ They come in such profusion, they pass each other so quickly, that the

layman ends by feeling numb and unresponsive. The jargon relating to the apparatus becomes self-sufficient, as if the mere bestowing of a correct and impressive term is an adequate account of an object, its appearance and function. There is, too, an underlying absurdity about the inventory which further erodes its credibility. Side by side with the impressive sounding descensories and sublymatories are some of the more basic products used: "Poudres diverse, ashes, donge, pisse, and cley" (CYT, VIII.807). This line might serve as a comment on the worth of the Yeoman's account of alchemical requisites.

The meaning of the list, then, lies not so much in the information it retails but in its very formlessness. This product of the Yeoman's mind, crammed full of unrelated words, conveys a good deal in a dramatic way about his response to the world in which he has lived. He acknowledges that his grasp of alchemical lore is disordered because he is not sufficiently learned:

Though I by ordre hem nat reherce kan,
Bycause that I am a lewed man,
Yet wol I telle hem as they come to mynde,
Thogh I ne kan nat sette hem in hir kynde ...
(CYT, VIII.786-89)

The impression is that the mysteries of alchemy have been refracted through an undiscerning mind, one that confuses understanding with factual knowledge, a mind that can repeat what it has been told (CYT, VIII.819-21) but without any perception of how the information might be applied. There are also clear hints that the Yeoman is impressionable and superstitious. The expense of the apparatus, "deere ynough a leek" (CYT, VIII.795), is a cause for comment; and he fears half humorously as he concludes his account

that the prolonged repetition of key words may be sufficient to conjure a devil (CYT, VIII.860-61).⁶²

The Yeoman is a man lost among the clutter of his master's den, where objects and substances have names but no meaning and no coherence. But there is more to his response than mere ignorance, for he is under few illusions about the worth of the Canon's work and its end-product. His attitude, in short, serves as a commentary on alchemy as such: its obsession with the tangible minutiae of experimentation is itself a cause of sublime ignorance, the innate inability to recognise the futility of the task.

The material world is divested of meaning as much through the critical comments of the Canon's Yeoman on the paraphernalia and practice of alchemy as through the cumulative effect of his mouthing in list form unassimilated information. He confesses that the jargon he uses is cant, designed to impress the unsuspecting: "we semen wonder wise,/Oure termes been so clerghial and so queynte" (CYT, VIII.751-52). There is a biting irony in his attitude to those who multiply, which he sees as a means whereby foolishness is revealed, since the very repetition at length of pseudo-scientific terms makes him guilty of the same error of multiplication.⁶³ Although he is himself unlearned, even the educated man is not proof against the follies of this practice. Monks, friars, priests and canons, however they might steep themselves in the love of alchemy, will find themselves in the same plight:

And konne he letterure, or konne he noon,
As in effect, he shal fynde it al oon.
For bothe two, by my savacioun,
Concluden in multiplicacioun

Ylike wel, whan they han al ydo;
This is to seyn, they failen bothe two.

(CYT, VIII.846-51)

The pursuit of alchemy has a dismal effect on its practitioners. The Yeoman has changed from being "fresh and reed" to being "wan and of a leden hewe" (CYT, VIII.727-28). It is a telling reversal of the wished for change from lead to red gold. Alchemy wastes away bodily substance like a disease (CYT, VIII.746-47) and the smell of brimstone, which makes the adept "stinken as a goot" seems able to "infecte" others at a distance (CYT, VIII.886-89). The Yeoman further warns that those who become obsessed with the art dress in "threedbare array" and "unthriftily" (CYT, VIII.890 and 893) since everything possible is sold to finance their activities:

... for nadde they but a sheete,
Which that they myghte wrappe hem inne a-nyght,
And a brat to walken inne by daylyght,
They wolde hem selle and spenden on this craft.
They kan nat stynte til nothyng be laft.

(CYT, VIII.879-83)

Alchemy, far from transmuting base metals into gold, changes the sons of Hermes themselves into scarecrow addicts.⁶⁴ Their art wastes away not only bodily substance and clothes but also their wealth. The Yeoman has borrowed so much money that he sees little prospect of repaying it (CYT, VIII.734-36), while prospective 'philosophers' are assumed to have full coffers (CYT, VIII.836-37).⁶⁵ Thus alchemy is revealed as a 'materialistic' science as well as one that attempts to transmute materials. Its object is the acquisition of gold, the wealth of its exponents a prerequisite, but in fact it wastes what it strives to create. The final twist is that the science itself has no substance: it is not based on fact, its truth cannot be acquired, it is a

"slidyng science" (CYT, VIII.732), a fantasy that evades capture.

(ii) The Moral Perspective

The Yeoman offers a double perspective on multiplying as both someone who knows its processes and as a critic of its validity.

He characterises his own involvement as blindness: "And of my swynk yet blered is myn ye" (CYT, VIII.730) and in a later

reference to his particular type of work it is implied that the practice of alchemy harms the personality as well as the body:

"I blowe the fir til that myn herte feynte" (CYT, VIII.753).

His reference to the data of experimentation as a substitute for holy writ, "To tellen al wolde passen any bible/That owher is"

(CYT, VIII.857-58) indicates that its compulsive pursuit entails spiritual perversion. This is made more clear elsewhere. It

is a "cursed craft" (CYT, VIII.830), an "elvysse craft" (CYT, VIII.751) involving "elvysse nyce loore" (CYT, VIII.842); it is

based on a false hope that never yields satisfaction but leads to material and spiritual bankruptcy. The Yeoman's master is

himself apostate and would "bitrayen innocence" (CYT, VIII.897)

in other people. They are tempted with an unobtainable future of material wealth which, if they pursue it, condemns them to

future damnation and the loss of all prospects of salvation:

Swich supposyng and hope is sharp and hard;
I warne yow wel, it is to seken evere.
That futur temps hath maad men to dissevere;
In trust therof, from al that evere they hadde.

(CYT, VIII.873-76)

The tone of the Yeoman's commentary leaves his audience in no doubt that alchemy involves self-deception. There is an overwhelming sense of nihilism in the reduction of the physical world to the impedimenta of the laboratory. Everything else goes

to waste. This distorted view of reality is the result of an obsession with the hoped-for results of the alchemical processes. The Yeoman gives two examples of such processes where, in a sort of spatial alchemy, the perceptual world is reduced to and filled with bubbling chemicals in flasks and crucibles. The detail is bright and intense, but these qualities only help to suggest the limited and warped point of view from which the scenes are presented.

The length of time which the Canon's Yeoman takes to begin his Tale proper indicates that he has a lot on his mind. It comes out in an uncontrolled flow and although he gradually edges towards telling his Tale (CYT, VIII.898) it seems to be with a great effort that he eventually subjects himself to the discipline of a coherent, integrated fiction. The 'confession' which precedes this allows the Yeoman to air his misgivings and give vent to a bitter remorse about his past involvement in alchemy.⁶⁶ His fragmented, sometimes wild statements are like the explosion which he describes - unpredictable, clearing the air. He is struggling desperately to put his past experience in perspective by publicly admitting what he has known in his heart for a long time, that multiplying is futile, the air of arcane wisdom a cloak for fraud.

The Yeoman makes an initial attempt, as it were, to give form to his anguished stream of consciousness by relating the sorts of activities and incidents which took place on his master's premises. Even then there is a strong impression of his being unable to give a structure to his recollections. The rhetorical "What sholde I tellen ... ?" (CYT, VIII.754) with which he begins a description of preparations for an experiment suggests that at

first he has no bearings, that the stream of memory is flowing too fast to be checked. At this point it is the externalising of his experience that is important rather than the forming of a satisfactory concrete image or fiction - a form of objective correlative - by which his emotion can be calmed. This only finally happens in his account of the 'fictional' canon.⁶⁷ For the moment the physical world as he remembers it is unstable and chaotic since it is distorted by a profound sense of guilt.

This lack of emotional and mental stability is reflected in the Yeoman's account of an alchemical process. His doubt about what he should tell is expressed through a disorganised presentation. He begins by telling how "orpyment, brent bones, iren squames" (CYT, VIII.759) are ground and placed in an earthen pot. He then mentions two other ingredients - salt and pepper - before suddenly recollecting that these should be put in the pot before the other chemicals (CYT, VIII.760-63). Nor can his attention stay long on specifics. Having detailed the ingredients and the apparatus, he moves erratically to a vague generalisation: "And of mucche oother thyng which that ther was" (CYT, VIII.765).

It is indicative of the Yeoman's state of mind that when he comes to recall the failure of the alchemical process he can only remember how accusations were insinuated against himself:

Somme seyde it was long on the fir makyng;
Somme seyde nay, it was on the blowyng, -
Than was I fered, for that was myn office.

(CYT, VIII.922-24)

He recalls that another helper blamed the wrong type of fuel, "Bycause oure fir ne was nat maad of beech" (CYT, VIII.928) and that "Another seyde the fir was overhoot" (CYT, VIII.955). To such a mind, it is no wonder that the physical world seems

distorted: small things become disproportionately large and fill the field of vision.

The two passages in which the Yeoman describes alchemical methods may be read as parts of the same procedure since the first describes the preparation of substances (CYT, VIII.754-83) and the second the heating of them in an attempt at transmutation (CYT, VIII.898-971). And as Skeat pointed out, the practice of "enlutyng" or stopping with clay vessels "That of the eyr myghte passe out nothyng" (CYT, VIII.767) mentioned in the first section more or less guarantees the explosion that occurs in the second.⁶⁸ So there is a technical as well as a procedural connection.

For a brief and unwitting moment the explosion illuminates in a flash the location of the experiment:

These metals been of so greet violence,
Oure walles mowe nat make hem resistence,
But if they weren wrought of lym and stoon;
They percen so, and thurgh the wal they goon,
And somme of hem synken into the ground -
Thus han we lost by tymes many a pound -
And some are scatered al the floor aboute;
Somme lepe into the roof.

(CYT, VIII.908-15)

The point of view suddenly widens from a sharp, narrow focus on the bubbling retorts to the entire space of the alchemist's room. There is a quick glance at its dimensions - walls, floor, roof - and a hint of the world outside. This disastrous event seems like the natural reactions of the chemicals against the physical and psychological intensity of the ignorant, wrong-headed and contrived alchemical 'work'. It is a neat and vivid image of literal multiplication and parallels the behaviour of the Yeoman himself who arrives in a state of considerable bodily heat, is controlled for a while by his master, but then gives vent to a series of explosive and fragmented utterances. He too senses

something seriously wrong with the alchemical processes and, by joining the pilgrims and making a confession, endeavours to place his own involvement in alchemy within a wider, a saner, a more natural social context.

There is a residual impression of the room's interior while the experimenters argue over the cause of their failure (CYT, VIII.920-37 and 942-59) and the impression is sustained when they go about salvaging the metal. The floor is swept and then

The mullok on a heep ysweped was,
And on the floor ycast a canevas,
And al this mullok in a syve ythrowe,
And sifted, and ypiked many a throwe.
'Pardee,' quod con, 'somwhat of oure metal
Yet is ther heere, though that we han nat al.

(CYT, VIII.938-43)

This image of men repeatedly picking their way through "mullok", the refuse of the floor, in search of precious metal, forcefully conveys the humiliation, the futility and the false hope that are the concomitant experiences of multiplying. The Yeoman himself draws attention to these destructive tendencies of alchemy:

... oure labour is in veyn ...
... lost is al oure labour and travaille;
And al the cost, a twenty devel waye,
Is lost also, which we upon it laye.

(CYT, VIII.777 and 781-83)

The environment in which the alchemist and his helpers work materialises in response to the Yeoman's efforts to recall, to understand, to define, to explain his emotions, and he is in no doubt as to the visual and moral associations of the alchemist's room. The heat, the misery, the rancour, recrimination and chaos, are like hell:

Though that the feend nocht in oure sighte hym shewe,
I trowe he with us be, that ilke shrewe.

(CYT, VIII.916-17)

The frustrated workers are like eternally demented people: "in oure madnesse everemoore we rave" (CYT, VIII.959). Nor is the Yeoman under any misapprehensions that exclusive specialisation in alchemy leads to an inability to judge between truth and falsehood. In the hot-house atmosphere of his master's establishment "Every man semeth a Salomon" (CYT, VIII.961); in fact, the wisest among them is a fool, the truest a thief (CYT, VIII.967-69). In the same vein, he asserts in terms of the familiar proverb that the pursuit of alchemy for material gain is the pursuit of an illusion; linking gold with the tempting appearance of an apple he may again be indicating the wider spiritual implication of damnation through excess of knowledge, the original sin:

But al thyng which that shineth as the gold
Nis nat gold, as that I have herd it told;
Ne every appul that is fair at eye
Ne is nat good, what so men clappe or crye.

(CYT, VIII.962-65)

At any rate, the Yeoman achieves before his Tale begins a steadier, more detached view of his past.

(iii) Locations

The physical world of the Yeoman's narrative - rubricated as Pars secunda of the Tale⁶⁹ - is, by comparison with Prima pars, stable and coherent. At the same time, it is an extremely narrow and intense world and the very concentration upon a restricted field of vision becomes a source of material and moral error. The canon of the Tale effects three 'transformations' of base substance into silver. He does this secretly, within the confines of a locked room. He is watched only by his dupe the priest, who gazes

wide-eyed at the miracles which seem to have been performed. But the priest's observation of the canon and his practices is not perceptive sight but a blindness born of covetousness. The intensity with which he watches and takes part in the alchemical processes is all part of the canon's manipulation: like a conjuror, he misdirects at crucial moments his victim's attention. The final lesson is that sight, if employed exclusively and without mental perspicacity, is deceptive.

There is a certain amount of toing and froing in the Canon's Yeoman's narrative, but this does not serve to define places or the dimensions of the canon's room to any significant degree. The Canon first goes to visit the "anueleer" in his room in order to borrow money, which is returned in due course (CYT, VIII.1022-35). Although the situation of the priest receives mention in the sense of his domestic regimen, there is no visual impression of his chamber, the house in which he lodges or its position, except that it is in London. Indeed, background information of this sort is dismissed - "Therof no fors" (CYT, VIII.1018) as being of little relevance.⁷⁰ At the canon's bidding, the priest sends his servant to buy quicksilver, a task that is rapidly performed. Priest and servant then take the mercury to the canon where the servant is sent out again, this time for fuel (CYT, VIII.1108-16). Before the 'transmutation' gets under way the canon advises the priest that his servant can be dispensed with, and he does not appear again:

Voyde youre man, and lat hym be theroute,
And shette the dore, whils we been aboute
Our pryvetee, that no man us espie,
Whils that we werke in this philosophie.

(CYT, VIII.1136-39)

All is done as the canon requires and the work begins (CYT, VIII. 1140-43). Of course, the exclusion of a second witness has little to do with guarding alchemical secrets - the canon is protecting himself from the danger of another pair of eyes detecting his tricks - but the sense of necessary isolation nevertheless reinforces the notion that alchemists are individuals cut off from society. The locked room, then, is important not so much for its appearance as for the atmosphere of dark secrecy it evokes.

The chamber is subsequently left on two occasions by both the canon and priest. First they go to find a chalk stone in order to make a mould for their metal and carefully shut the door, taking the key with them (CYT, VIII.1217-20). This precaution is to give the priest confidence in the canon's integrity (CYT, VIII.1213-16). On the second occasion, such measures are unnecessary since the transmutations have been completed. The two of them go to have their silver assayed (CYT, VIII.1337-40).⁷¹ There is in all this no impression of the interior of the chamber as such, nor its location. Movements to and from it are dictated by the requirements of the plot; they do not help to define distances between separate places. Such prevailing anonymity of locale and the constant movement helps to reinforce the essential anonymity and transience of the canon himself who "is heere and there;/He is so variaunt, he abit nowhere" (CYT, VIII.1174-75) and who, once the priest has bought his recipe, is never seen again (CYT, VIII.1381-82).

(iv) Seeing as Believing

The events in the alchemist's chamber are intricate and it is as

well to have a clear conception of the three separate tricks which the canon plays on the priest. The first two appear to convert mercury to silver; the third to convert copper to silver. On the first occasion (CYT, VIII.1116-248), an ounce of quicksilver is placed in a crucible by the priest acting under directions from the canon. The crucible is put on a fire and the canon adds some worthless powder. The priest tends the fire while the canon takes out a hollow coal containing silver filings, stoppered with wax. The canon takes over the heating, secretly positioning the bogus coal on the fire in such a way that the molten silver runs out into the crucible. A mould is then formed out of chalk stone, the molten substance in the crucible poured into it and the ingot cooled in water. When the priest removes the ingot it is found to contain a silver bar. On the second occasion (CYT, VIII.1249-87) the canon proceeds in the same way, except that he transfers the silver filings to the crucible by means of a hollow stick with which he stirs the fire. The final stratagem depends on a straightforward substitution (CYT, VIII.1224-31 and 1288-329). The canon carries in his sleeve a silver bar the same shape as the mould. Copper is heated on the fire, the powder added and the molten mixture poured into the mould by the canon. He then puts the mould and its contents into the pan of water, exchanging as he does so the resulting copper bar for the silver one in his sleeve. The priest is again left to discover his treasure.

Quite literally, the priest cannot see for looking. The success of the canon's tricks, like many conjuror's tricks that involve legerdemain, depends on the misdirection of visual attention

at critical moments, and on the building up of false visual expectations. It is precisely by drawing attention to the fact that the priest is going to see alchemy at work that the canon manages to mesmerise his victim:

Taketh good heede, ye shul wel seen at ye
That I wol doon a maistrie er I go.

(CYT, VIII.1059-60)

For ye shul seen heer, by experience,
That this quyksilver I wol mortifye
Right in youre sighte anon ...

(CYT, VIII.1125-27)

The priest is so eager to witness this miracle performed that he pays no attention to the manner in which it is actually achieved. His attention is fixed on the crucible, the fire, its contents, the ingot, the cooling pan and its marvellous products, small things that exert a profound and exclusive fascination. It is therefore a relatively easy matter for the Canon to divert the priest's attention when there is some legerdemain to perform. As the priest is intent on arranging the coals round the crucible, the canon takes out his dummy coal (CYT, VIII.1156-60); in order to transfer it to the fire he tells his victim that the coals are not arranged properly, takes over the operation and offers the sweating priest a cloth to wipe his face. The suggestible priest accepts,

And whiles that the preest wyped his face,
This chanoun took his cole - with sory grace! -
And leyde it above upon the myddeward
Of the crosselet, and blew wel afterward ...

(CYT, VIII.1188-91)

(v) Moral Blindness

From the point of view of the narrator and his audience the priest's

watchfulness is but a form of blindness. The limited perception of the priest is no match for the canon's manoeuvres; the quickness of the hand deceives the eye and sight cannot detect sleight. There can be little doubt as to the origins of the priest's apparent physical disability to see that he is being duped. It stems from a moral and spiritual myopia:⁷²

O sely preest! o sely innocent!
With coveitise anon thou shalt be blent!
O gracelees, ful blynd is thy conceite,
Nothyng ne artow war of the deceite
Which that this fox yshapen hath to thee!

(CYT, VIII:1076-80)

The worthless powder which the canon adds to the crucible, the magical transmuting agent made of chalk and glass "To blynde with this preest" (CYT, VIII.1151) demonstrates how susceptible the priest has become to seeing that which he wishes to see because of his basic moral defect. Covetousness makes him regard it as a fabulous substance well worth the forty pounds he spends on the recipe (CYT, VIII.1357-67).

In the final lines of the Tale, the Yeoman denounces multiplying not only as a science to which the spiritually blind are attracted but as itself a cause of blindness: "This multiplying blent so many oon" (CYT, VIII.1391). Those who are engrossed in its processes are unable to perceive that it is worthless. Its adherents are like blind Bayard who blunders about without regard for the dangers.⁷³ He is likely to lose his way or "renne ageyn a stoon" (CYT, VIII.1415). There is a play on 'stone' here as the philosopher's stone which forms an obstacle that may lead to destruction.⁷⁴ The way to avoid it is to shun dependence on the objective, material world of alchemy and what it seems to offer and to develop instead understanding,

the faculty of mental as opposed to visual perception. Exclusive reliance on the evidence of the senses can be disastrous:

If that your eyen kan nat seen aright,
Looke that youre mynde lakke nocht his sight.
For, though ye looken never so brode and stare,
Ye shul nothyng wynne on that chaffare,
But wasten al that ye may rape and renne.

(CYT, VIII.1418-22)

The Yeoman hints strongly throughout his Tale that the canon whom he describes is a diabolical figure. His influence is far-felt, his falseness infinite (CYT, VIII.972-89). He suggests "feendly thoughtes" to the priest and is "rote of al trecherye" (CYT, VIII.1069-73). He is repeatedly referred to as both "feendly" and "cursed" (CYT, VIII.1158-59, 1227, 1259, 1302-4 and 1319).⁷⁵ By association, the practice of alchemy is damned. Those who tend the fires of transmutation, it is implied, are likely to finish by tending the fires of hell:

O! fy, for shame! they that han been brent,
Allas! kan they nat flee the fires heete?
Ye that it use, I rede ye it leete,
Lest ye lese al; for bet than nevere is late.

(CYT, VIII.1407-10)

The ability to see, to understand, to perceive that alchemy is false becomes a moral imperative. The eyes themselves are not sufficient defence against the wiles of defrauders; they must be the instruments of mental acuity. The secret of the philosophers is not to be discovered by man and to Christ himself "it is so lief and deere/That he wol nat that it discovered bee" (CYT, VIII.1467-68). Knowledge will be imparted to those who are divinely favoured; man's wisest course is to avoid excessive wilful pursuit of such knowledge. Otherwise, God becomes his adversary (CYT, VIII.1469-81). The Tale ends on this note: that ultimately man's vision is necessarily restricted and that

the human acquisition of knowledge has its limits. This puts in a transcendent context the notion, now shown to be inadequate, that the eyes alone can apprehend truth. The visually intense, planimetric world of the alchemist's den suggests the limitations of an activity which urgently needs to be seen in a moral perspective.

E. FRAGMENT VIII IN RETROSPECT

Both the Second Nun's Prologue and Tale and the Canon's Yeoman's Prologue and Tale are concerned with deceptive vision. Cecilia argues that human sight is essentially misleading, resulting at one extreme in the worship of stones. Truth is to be found in the spiritual insight provided by Christianity, which enables transcendence of the material world. The experience of the Canon's Yeoman reveals the alarming consequences of an extreme dependence on the restriction of vision to the material world, in order to produce another kind of idol, the philosopher's stone. The alchemical practitioners and their followers are shown as victims of the morally blinding disorder of avarice. Between these two extreme visual worlds, it is reassuring to discover a stable mid-point. The quick observation of Chaucer the pilgrim and the no-nonsense attitude of Harry Bailly return us to a world where the evidence of the eye can be trusted, provided that it is coupled with a reasoned interpretation.

In Fragment VIII of the Canterbury Tales, Chaucer displays some aspects of his interest in the psychology of perception. He approaches the normal viewpoint of the pilgrimage link from a world where spirituality triumphs over materialism; he leaves the link to reveal a materialistic world which oppresses the spirit. In both worlds, perception is abnormal. It is made so by God in the first Tale; and by the devil in the second. In both Tales, Chaucer demonstrates that the way the world is seen depends on the 'mental set' of the perceiver. He ensures, too, that the visual worlds of the narratives accord with their inhabitants, the indifference to concrete detail in the Second

Nun's Tale contrasting with the superabundant objective description of the Canon's Yeoman's Tale. Chaucer explores ideas of vision and their aesthetic consequences in more complexity in Fragment I of the Canterbury Tales, to which we must now turn.

CHAPTER 6:

THE 'CANTERBURY TALES', FRAGMENT I - THE 'KNIGHT'S TALE'

A. INTRODUCTION

(i) Fragment I

In Fragment VIII of the Canterbury Tales, Chaucer's optical interests are expressed through an exploration of different ideas of light, vision and space, with an emphasis on vision. These ideas, as we have seen, exist both as part of his created worlds and also as important, unifying themes of the Second Nun's Prologue and Tale, Canon's Yeoman's Prologue and Tale and their link. In moving to Fragment I, a new emphasis is discovered. Light and vision are treated more naturalistically and space now becomes prominent as a means of distinguishing between different responses to the visual world. In the Knight's Tale there are three loci - the tower prison, grove and lists, where the sense of space is used to articulate the components of the philosophical problem which the poem explores. The Miller's Tale dispenses with such problems and space ceases to be imbued with philosophical ideas. Nevertheless, Chaucer organises it in such a way that it becomes an integral part of his meaning. In the Reeve's Tale, the control of space becomes a matter of dispute between miller and clerks, while space also exists at a metaphorical level. It is evident that in the fabliaux as much as the romance, Chaucer uses light, vision and space as effective means of organising his narratives and their content.

(ii) Critical Responses and Sources

At first sight, the Knight's Tale seems an unpromising source of spatial descriptions. Critics tend to see it as a unified work with concerns of an abstract rather than a representational

nature.¹ These include the relationship of order and form to disorder and chaos;² the pattern of chance, fate and free will;³ the relative nature and worth of two lovers of apparently equal merit;⁴ the complementary nature of their love;⁵ and the ironic questioning or satirising of ideas of chivalry and courtliness.⁶ Thus, the portrayal of Athenian life tends to impress by its orderliness, its ritual and ceremony, its sense of pageant and spectacle, while the individuals who inhabit this world have no character;⁷ they are rather the means of articulating the various themes. All in all, the physical circumstances of the tale are radically different from the realistic loci of other poems which are so suggestive of material depth. Space in the Miller's Tale and Reeve's Tale, for example, seems to depend for its existence on an earthliness far removed from the philosophical musings of the first Canterbury Tale.

Some supporting evidence for Chaucer's seeming lack of interest in space in the Knight's Tale can be found in a comparison of some parts of the poem with its major source, the Teseida of Boccaccio,⁸ and with the minor sources, the Thebaid of Statius⁹ and the twelfth century Roman de Thèbes.¹⁰ For example, after the release of Arcita from prison, Boccaccio describes how the young knight prays for a final glimpse of Emilia; his prayer is granted and the young woman appears on a balcony "mirando il grazioso giovvinetto/che in esilio dolente n'andava,/ e compassione alquanto gli portava" (Tes., III.83). Arcita lifts his face to see that sight, then looks a second time, comforted but weeping as he leaves (Tes., III.84). The pathos of the leave-taking is captured in the final stanza of the third book, where Boccaccio describes the increasing distance between

Arcita and Emilia:

E così detto, per fornir la 'mposta
fattoli de Teseo, a cavalcare
incominciò; ma dolente si scosta
dal suo disio, il qual quanto mirare
poté il mirò, pigliando talor sosta,
vista facendo di sé racconciare;
ma non avendo più luogo lo stallo,
uscì piangendo d'Attene a cavallo.

(Tes., III.85)

Boccaccio, in his tale, pays much more attention to Arcita than he does to Palemone: it is he who sees Emilia first not, as in the Knight's Tale, Palamon; and it is Arcita who, throughout the Teseida, is depicted as the star-crossed hero who deserves to better his rival and win his heart's desire. Chaucer, in condensing the story and in introducing a debate on the relative merits of the two lovers, excludes such episodes as this which stress the experience of particular individuals to the detriment of others.¹¹ The emphases and stresses in Boccaccio's tale, in this instance achieved through a judicious use of space, are largely foreign to Chaucer's purpose. But it does not necessarily follow from Chaucer's commitment to abbreviation and to a different order of thematic priority that Boccaccio's spatial passages are forgotten. When they are useful, they are sometimes used. On one occasion at least, during the tournament, Chaucer is able to unite two disparate elements of his major source without jeopardising his objectives.¹²

In one or two isolated instances, it appears that Chaucer, far from neglecting space as it occurs in the Italian source, actually adds to the impression of depth by intensifying some aspect of a described scene first by reduction in length, leading to a concentration of visual effects, and then by highlighting

particular details. When Theseus returns to Athens in the early part of the Knight's Tale, he is met by the Theban women who ask for revenge against Creon. In Boccaccio, (Tes., II.25-26) the women, in mourning for their slaughtered husbands, are praying at a temple within the city, as they are in the Thebaid (Theb., XII.481-518) when they hear of the Duke's arrival and rush out, dishevelled and anguished; to confront him in his chariot. Having listened to their plea, Theseus hands down Hippolyta and Emilia from the chariot, gazes with pity at the disconsolate figures and turns round to announce to his army their immediate departure to avenge the deaths (Tes., II.43). While Boccaccio does therefore not neglect the physical situation, Chaucer rearranges it considerably. Theseus in the Knight's Tale is mounted on a charger; he meets the women outside the city; the supplicating ladies are seen from his point of view; and although they are in a state of extreme grief, their behaviour is not impetuous, but considered and measured, almost tableau-like. They wait kneeling for the Duke, two by two, until they catch his bridle:

This duc, of whom I make mencion,
 Whan he was come almost unto the toun,
 In al his wele and in his mooste pride,
 He was war, as he caste his eye aside,
 Wher that ther kneled in the heighe weye
 A compaignye of ladyes, tweye and tweye,
 Ech after oother, clad in clothes blake ...

(KnT, I.893-99)

After listening to them, Theseus dismounts, helps them to their feet and comforts them (KnT, I.952-58).

The details which Chaucer adds to Boccaccio's account are not found in Statius, who concentrates more on dialogue than the presentation of a scene (Theb., XII.540-610). Some details

Chaucer inserts in the interests of the continuing concerns of his poem, particularly the prepared, ordered attitude of the women reflects a general concern for order and degree; and the role of Duke as comforter recurs.¹³ But the additional physical detail comes from a third source, the Roman de Thèbes,¹⁴ which describes the arrival of Theseus on horseback, the grieving women going to meet him and kneeling in supplication, and Theseus dismounting before helping them to their feet (Rom. Th., 9935-98). Thus Chaucer's concern to give more definition and depth to physical circumstance is effected through a careful collation and combination of his various sources.¹⁵

After line 1004 of the Knight's Tale, the contribution made to the poem by the Thebaid and Roman de Thèbes dwindles to virtual insignificance. From this point on, Boccaccio's Teseida forms the raw material of Chaucer's poem. But it has been instructive to consider the influence of the minor sources because it reveals that, in certain descriptions where the third dimension plays a part, Chaucer relies exclusively and without any deliberate policy or consistency, on the given material of earlier authors. In other cases, where Boccaccio uses space effectively, Chaucer disregards it. In these circumstances, it is all the more remarkable that Chaucer, acting from his own initiative, should introduce into the poem at later points original material that serves to accentuate, through a judicious use of space, the significance of three key places: the tower, the grove and the lists. These "governing images", to use Kolve's suggestive term,¹⁶ have a polarising effect on the ideas which the poem explores.

B. THE TOWER PRISON

(i) Boccaccio Redesigned

In Boccaccio, the first mention of the imprisonment of Arcita and Palemone suggests that the two knights were treated with special care. They are set aside from other prisoners taken at Thebes and live in a room within the palace of Teseo "faccendo lor servire a lor piacere" (Tes., II.99). At an early stage, therefore, the possibility of there being some contact between the heroes and other members of the royal household is established; and the possible hardship of their situation is mollified. The corresponding lines in Chaucer strike a quite different note. There is no mention of other prisoners, and the Duke's treatment of the Theban knights seems summary and harsh:

... and he ful soone hem sente
To Atthenes, to dwellen in prisoun
Perpetuelly, - he nolde no raunsoun.
(KnT, I.1022-24)¹⁷

Palamon and Arcite are then consigned not to a comfortable room but to a tower prison, the adversity of which is stressed by placing its first mention after a reference to Theseus' glorious, laurel crowned return to Athens to live - again perpetually, "Terme of his lyf" - in joy and honour (KnT, I.1025-29). By contrast, they live

... in a tour, in angwissh and in wo,
This Palamon and his felawe Arcite
For everemoore; ther may no gold hem quite.
(KnT, I.1030-32)

The verb that is missing from these lines - "lyveth" - is found in the preceding lines about Theseus' well-being (KnT, I.1028), so that the dependence of the knights' fate on their captor, as well as their opposite conditions, is suggested in a verbal

dependence. Thus the misery, the long, hopeless duration of the imprisonment and the control of Theseus over his captives are made clear.

The urban palace of the Teseida is made into a medieval castle, with its keep and dungeon. Boccaccio's unspecified palace room of the Teseida has now become a distinctive, isolated and austere tower. It rises up above the rest of the Duke's castle, seemingly impenetrable from within or without. It is emphatically the place where Palamon and Arcite are incarcerated:

The grete tour, that was so thikke and stroong,
Which of the castel was the chief dongeon,
(Ther as the knyghtes weren in prisoun
Of which I tolde yow and tellen shal) ...
(KnT, I.1056-59)

The interior of the prison, as a physically containing edifice, is implied when the tower later resounds to Palamon's complaint, and the restrictions it imposes are brought out in the poignant Chaucerian detail of his chains:

Swich sorwe he maketh that the grete tour
Resouneth of his youlyng and clamour.
The pure fettres on his shynes grete
Weren of his bittre, salte teeres wete.
(KnT, I.1277-80)

Elsewhere, Chaucer's conception of the prison as a dark and hopeless place is apparent:

In derknesse and horrible and strong prisoun
Thise seven yeer hath seten Palamoun ...
(KnT, I.1451-52)

Within this murky stronghold, movement is possible - with permission from the gaoler. Palamon is able to climb to a vantage point high in the tower, and there at least the darkness is pierced by a well protected window "thikke of many a barre/Of iren greet and square as any sparre" (KnT, I.1075-76).

The impact of the prison as a separate, imposing place is therefore much more forcible in the Knights Tale than in the Teseida.¹⁸ And just as the image is more vivid, so is the crucial event. Boccaccio begins the passage on the knights' first sight of Emilia with a conventional description of Spring, then focuses on the appearance of Emilia: "e 'n giubba e scalza gia cantando/amorose canzon, se diportando" (Tes., III.8). It is not in the course of the first description of her in the garden that Emilia is seen. Her garden wanderings are represented as an habitual activity: "E questa vita più giorni tenendo" (Tes., III.9), until one day she is noticed. Chaucer, for his part, also begins with a Spring setting and the appearance of Emily, but then there follows immediately Palamon's sight of her from the tower window.¹⁹ It was on this particular day, in Spring, on this unique occasion, that she caught his eye. The incident thus gains in intensity and drama over the version of Boccaccio: "Bright was the sonne and cleer that morwenynge" (KnT, I.1062).

The distance between the girl and the young knights is increased by Chaucer by placing Palamon high in the tower. The Teseida has the prison adjacent to the garden and Emilia is near enough to the palace chamber to attract Arcita's attention by the sound of her singing (Tes., III.11). In the Knights Tale, although Emelye sings she is not heard (KnT, I.1055). It is the act of seeing her that is emphasised and here Chaucer, as if to point up the arbitrary nature of events, indicates how accidentally Palamon came to see the young girl.

Chaucer's account of this highly dramatic moment is

particularly acute in its attention to the psychology of perception, and one detects also the influence of the incident in the Roman de la rose when Amant is first struck by the arrows of Amors.²⁰ First there is a subtle preparation for impending events in the matching of movements. Palamon "romed in a chambre an heigh" (KnT, I.1065) just as Emelye "romed up and doun" (KnT, I.1069).²¹ Next, Palamon scans the city, including the garden, without seeing Emelye:

... he al the noble citee seigh,
 And eek the gardyn, ful of braunches grene,
 There as this fresshe Emelye the shene
 Was in hire walk ...

(KnT, I.1066-69)

A mounting expectancy develops. Emelye's 'sheen' or brightness, a recurring association, makes it probable that she will be picked out from her surroundings. After more "romynge to and fro" (KnT, I.1071) Palamon happens "by aventure or cas" (KnT, I.1074) to glance through the window and his attention is indeed arrested by this source of light:

He cast his eye upon Emelya,
 And therwithal he bleynte and cride, "A!"
 As though he stongen were unto the herte.

(KnT, I.1077-79)

The circumstances deserve attention. Palamon is shut within the gloomy confines of the high tower. Outside there is brightness, colour, freshness, all concentrated in the person of Emelye (KnT, I.1035-39 and 1048-54). Between them is the thickly barred window, providing from Palamon's point of view a dark, contrasting frame for the captivating, distant scene below. There is thus a strong impression of depth between the relatively near window and the picture it encloses, a space that is bridged by

the active quality of Emelye's appearance.

It is true that Arcita, in the Teseida, looks through a window to see Emilia. But it is a deliberate, not a casual act, prompted by the sound of her voice. And rather than stand on one side of the window, he puts his head through it, so that the framing effect is absent. Absent too is the contrast between the dark, restricting interior, and the bright, open world outside (Tes., III.11-12). Palemone joins Arcita at the window and together they gaze on Emilia and sigh until she becomes aware of them and returns their stare:

A quello omè la giovinetta bella
si volse destra in su la poppa manca;
né prima altrove ch'alla finestrella
le corser gli occhi, onde la faccia bianca
per vergogna arrossò, non sappiendo ella
che si fossa color ...

(Tes., III.18)

Here too, then, is a sensible passage of space between lovers and beloved, but the exchanged glances are more conventional than in the Knight's Tale and, without the greater distance and more detailed circumstance of Chaucer's version, the impression of depth is comparatively slight. It is not, as in the Knight's Tale, an integral and important part of the experience. And it is further diluted in Boccaccio by several repetitions of a similar event in the course of which Emilia becomes more self-conscious and coquettish (Tes., III.28 and 38-42). By comparison, the second sighting of Emelye in the Knight's Tale, on this occasion by Arcite, only accentuates the sense of depth and distance, for the second knight essentially repeats his fellow's experience, if in contracted form. He looks from the tower to the garden, spies Emelye, "hire that rometh in the yonder place"

(KnT, I.1119), and is wounded in the eye.

(ii) The Idea of Imprisonment

Just as Boccaccio pays less attention to depth, so his attitude towards the suggestive qualities of imprisonment is more limited and conventional. Although Love becomes a more severe captor than Theseus after the knights have seen Emilia (Tes., III.22-24 and 34-35), physical imprisonment is not necessarily a hardship:

Né era lor troppo sommo disire
che Teseo gli traesse di prigione,
pensandosi ch'a lor converria gire
in esilio in qualch'altra regione,
né più potrebb'er veder né udire
il fior di tutte le donne amazone ...

(Tes., III.37)

Imprisonment only becomes intolerable when inclement weather keeps Emilia indoors (Tes., III.44-46). Later in the Teseida, Arcita refers to his previous imprisonment with bitter irony because, although no longer restricted in movement, he must still appear in disguise (Tes., IV.24); and Palemone recalls his life in prison when, after the tournament, he presents himself to Emilia:

"Madonna, io son vostro prigione,/e sono stato continuamente/poi ch'io vi vidi" (Tes., IX.63). But this is the limit of Boccaccio's treatment of the idea of imprisonment: it serves as a form of narrative cross-reference. And although the Teseida, like the Knight's Tale, has a commitment to exploring the relationship of fate, chance and freedom, there is no serious attempt to associate man's enclosure by forces beyond his control with the image of the prison.²²

In Chaucer, the opposite is the case. The initial emphasis on the perpetual duration of the term of imprisonment (KnT, I.

1023-24, 1030-32, 1175-76 and 1457-58) suggests that the tower is more than just circumstantial; it is also representative of the knights' condition as human beings and helps to sustain the ontological questions that are the meat of the poem.²³ For once Chaucer's heroes have seen Emelye, their experience, unlike that of the Italian knights, intensifies and imprisonment becomes for each of them an epitome of their individual plights. Here must be acknowledged Chaucer's underlying debt to Boethius, from whom the idea of imprisonment, if not its physical circumstances, chiefly derives.²⁴ Imprisonment, of course, is the situation in which Boethius finds himself, and though never elaborated to any great extent, it takes on a figurative status as the prisoner, in his dialogue with Philosophy, attempts to reconcile himself to the human condition.²⁵

Palamon is restive before his sight of Emelye, complaining that not only the tower, but life itself is restricting: "That he was born, ful ofte he seyde, 'alas!'" (KnT, I.1073). After he has seen Emelye - that glimpse of freedom - he denies that prison per se is a cause of his sorrow; it is love that affects him:

This prison caused me nat for to crye ...
 The fairnesse of that lady that I see
 Yond in the gardyn romen to and fro
 Is cause of al my crying and my wo.

(KnT, I.1095 and 1098-100)

Yet he wishes to escape and prays to Venus either that she will grant his desire or at least ameliorate his condition. At the same time, he acknowledges that his plight may be fore-ordained: "if so be my destynee be shapen/By eterne word to dyen in prisoun" (KnT, I.1108-9). The awareness of both knights that their actions and experiences are in some way controlled by inscrutable powers begins to cast a symbolic light on the tower itself.

When Arcite is released, Palamon's feelings about his condition are aggravated (KnT, I.1275-80). He believes that his fellow's physical freedom - "Thow walkest now in Thebes at thy large ... thou art at thy large, of prisoun free" (KnT, I.1283 and 1292) - will enable him freely to exercise his power, make war on Athens, and win Emelye (KnT, I.1285-90). By contrast, Palamon sees himself in a cage, his sorrow doubled by woe from imprisonment and pain from love (KnT, I.1293-98). From a mood of self-pity he moves to a consideration of the arbitrary and unjust nature of the gods who govern the world, relating his own condition to that of mankind in general. Man bears no obligation to the gods, for they treat him as they do beasts, decreeing death (KnT, I.1303-9); man is arrested, imprisoned, suffers sickness and adversity, often without reason (KnT, I.1310-12), while the guilty go free (KnT, I.1325-27). Palamon leaves the finer points of the enigma to the "dyvynys" (KnT, I.1323),²⁶ and concludes that Juno, "jalous and eek wood" Saturn and Venus are responsible for his imprisonment (KnT, I.1328-31). Thus the particular circumstance of Palamon's existence mirrors the larger question of the gods' arbitrary control of man's activity.

Arcite too is responsive to the metaphorical possibilities of the prison. He counsels Palamon to take adversity patiently, linking the tower to the operation of destiny:

... taak al in pacience
Oure prisoun, for it may noon oother be.
Fortune hath yeven us this adversitee.

(KnT, I.1084-86)

Against such control, will is ineffectual (KnT, I.1087-89). When Arcite has himself seen Emelye, then his destiny as well as that of Palamon is shaped by a subsidiary force: Love, which like Fate itself, man is powerless to control: "Man moot nedes love, maugree

his heed" (KnT, I.1169). But escape from the tower brings Arcite no psychological freedom. Chaucer is careful to balance the situations of the two knights:

Who hath the worse, Arcite or Palamoun?
That oon may seen his lady day by day,
But in prison he moot dwelle alway;
That oother wher hym list may ride or go,
But seen his lady shal he nevere mo.

(KnT, I.1348-52)

For Arcite, the prison of the outside world is worse than that of the tower: "Now is my prisoun worse than biforn" (KnT, I.1224). Imprisonment was purgatory, but 'freedom' is hell, while Palamon is in Paradise (KnT, I.1225-26 and 1236-37). Happiness would be to be back in Theseus' castle, within sight of his beloved (KnT, I.1227-33). Arcite has a similar reaction to Palamon in envying his fellow's state, in believing that Fortune may be favourable to some act on his rival's part that will secure Emelye (KnT, I.1240-43), and in moving from self-pity to theological speculation. Man, says Arcite, ought not to wish for anything but what God or Fortune has in store. Although appearances may be to the contrary, they act for man's good. Prayers are uttered in ignorance of future events and, like a drunken mouse, man totters from one condition to a worse, from prison to murder in his own house.²⁷ Better the prison you know than the freedom you don't (KnT, I.1251-74).

The existential problems explored by Palamon and Arcite make of man's life a prison, the "foule prisoun of this lyf", referred to by Theseus after Arcite's death (KnT, I.3061). Man is constrained by fate and chance and by the acts of the gods. Perhaps it is possible to be a little more precise than this and say that, as well as introducing the major philosophical themes

of the poem, the dark, containing interior of the tower prison is used by Chaucer as an image of man's subjection to arbitrary and adverse events. It is by chance that Palamon and Arcite are discovered at Thebes: "And so bifel" (KnT, I.1009-14); by chance that they see Emilia and fall in love: "And so bifel, by aventure or cas" (KnT, I.1074). This one side of the human condition is stressed both in the knights' reaction to their experiences and in the asides of the narrator. Arcite advises that each of them must take what comes in life:

Heere in this prisoun moote we endure,
And everich of us take his aventure.

(KnT, I.1185-86)

Palamon realises that chance may give Emelye to his rival: "by som aventure or some trettee/Thow mayst have hire to lady and to wyf" (KnT, I.1288-89); Arcite approaches the grove where Palamon is hiding "By aventure" (KnT, I.1056), where "by aventure" Palamon is hiding in a bush (KnT, I.1516); the ladies of the court pity the chance that brings the two knights together in mortal combat (KnT, I.1751-52); Theseus decrees that the tournament will be an "aventure of love" (KnT, I.2357); and it is by "aventure" that Arcite falls from his horse in the lists (KnT, I.2703 and 2722).

The word aventure,²⁸ so appropriate in a chivalric context, is repeatedly used by the narrator in conjunction with cas to stress the two great determining forces of the Tale: chance and destiny. Semantically, cas seems not to imply 'ordered destiny' as separate from aventure or 'arbitrary chance',²⁹ but their juxtaposition as alternative determinants suggests that Chaucer's usage involves such a distinction. To human beings, of course, the workings of destiny look like chance, and this point is

emphasised as a preliminary to the Duke's arrival at the grove where Palamon and Arcite fight (KnT, I.1663-72).³⁰ Perhaps it is this sort of nice balance between the appearance and reality of experienced circumstances that is implied in the phrase 'by aventure or cas'. Certainly the difficulty of grasping the relationship between apparently chaotic and inimical events and their theoretical control by benevolent forces imparts great anguish to the plight of Arcite and Palamon and gives resonance to the idea of prison.

If the gloomy restrictiveness of the tower serves as an analogue of an existential condition, so does the other important aspect of the spatial design - the sight of Emily. The dazzling vision in the garden below penetrates the dark confines of the prison and offers to the knights the possibility of freedom. "Love is free" exclaims Arcite (KnT, I.1606), and Theseus sees it as an alternative to prison (KnT, I.1767-69), though he warns that it too can lead to thralldom (KnT, I.1815-17), as is also evidenced by the statue of Venus (KnT, I.1951). In fact, it is as restrictive as Fortune (KnT, I.1490).³¹ Now the desire of the lover to see his beloved and the passage of wounding visual rays between them is, as we have seen, a commonplace of courtly literature.³² But Chaucer adapts both ideas to his own purpose. In the first place, Emelye is depersonalised. She never receives the full-scale rhetorical description provided by Boccaccio (Tes., XII.53-65) and instead becomes a source of light, a bright object towards which the knights direct their aspirations. The epithets "shene", "bright", "clear" and "fresh" are characteristically applied.³³ The sight of Emelye is associated for Arcite with release from woe (KnT, 1230-33 and 1238-39); without this, death

is preferable (KnT, I.1273-74). This desire, therefore, motivating the actions of both Palamon and Arcite serves, like the continuing references to Emelye's brightness, as a recurrent reminder of the first dramatic sighting. So although the image of the tower and garden fades from view in the course of the second book, its impact and significance continues to be felt throughout the poem.³⁴ Arcite, complaining aloud in the grove, refers to Love's "firy dart" that has entered through his eyes and pierced his heart (KnT, I.1563-66), and concludes: "Ye sleen me with youre eyen, Emelye!" (KnT, I.1567). Overhearing his fellow's words, Palamon reacts with jealous indignation, and again the progress of his emotions is described in a way that recalls the first wounding of his heart: "thurgh his herte/He felte a coold swerd sodeynlich glyde" (KnT, I.1574-75). Ironically, it is in the instant before death that Arcite is able fully to recapture his first vision in the palace garden:³⁵

Dusked his eyen two, and failed breeth,
But on his lady yet caste he his ye;
His last word was, "Mercy, Emelye!"

(KnT, I.2806-8)

C. THE GROVE

(i) The Nature of the Place

When Palamon escapes from prison, he flees to the grove "faste ther bisyde" (KnT, I.1478) where he hides himself, intending to stay until darkness. Arcite, rising on this May morning, directs himself to the same grove to gather woodbine or hawthorn leaves for a garland.³⁶ This time, the distance from Athens is specified more precisely: it is a mile or two "Out of the court" (KnT, I. 1504). The Teseida is equally explicit, but in other ways the grove loses its distinctiveness because by the time Palemone and Arcita meet each other there, Arcita has already visited it many times to complain of his unrequited love. And it is not Palemone who overhears Arcita, but Palemone's servant Pamphilus, who reports back to his master (Tes., IV.63-91). The dramatic, intense quality of Chaucer's grove scene is lacking.

In the Knight's Tale, Arcite dismounts from his courser, enters the grove "hastily" (KnT, I.1514) and roams up and down - that characteristic movement of the unquiet lover - along a path. Palamon, hidden from sight in a bush, is frightened that he will be discovered. He does not yet know that the agitated visitor is his rival. In contrast to Arcita's restlessness, he sits "ful stille" (KnT, I.1527). The attention to movement is not without importance, because it mirrors the subjection of both knights to the changeable power of Love. After having "romed al his fille" (KnT, I.1528) and sung joyfully, Arcita suddenly becomes pensive and Chaucer introduces a naturalistic comparison in keeping with the setting:

As doon thise loveres in hir queynte geres,
Now in the crope, now doun in the breres
Now up, now doun, as boket in a welle ...

(KnT, I.1531-33)

Arcite and Palamon literally enact the mutability of Venus. After Arcite has sung, he sighs and sits down "in the breres" (KnT, I. 1532), complaining against his destiny, whence ensues more depression, only to be replaced by an equally sudden movement upwards:

And with that word he fil doun in a traunce
A longe tyme, and after he up sterte.

(KnT, I.1572-73)

Palamon is no less volatile. Having crouched in the bushes and overheard Arcite's confession of love for Emelye, anger consumes him: "with face deed and pale,/He stirte hym up out of the buskes thikke" (KnT, I.1578-79). In Boccaccio's version, there is none of this. Palemone goes to the grove expecting to find Arcita, which he does, and the two embrace as long lost friends, though acknowledging their rivalry in love (Tes., V.27-40).

Palamon and Arcite return to the same spot the next day to have their duel, Arcite bringing armour for his opponent (KnT, I.1634-35).³⁷ Although there is no attempt to describe the spatial setting of this scene, the comparison with hunters waiting for a lion or bear to rush from a gap in the undergrowth introduces a visual effect that does require some imagination of depth (KnT, I.1636-48).³⁸ But it is really with the approach of Theseus and his party that this second important place of the Knight's Tale takes on its own spatial identity. The sense of approach itself helps to foster such an impression. The hunting party is heading straight towards the grove - again described as "ful faste by" - in which there is reputed to be a hart (KnT, I.

1688-89). The directness of their route is stressed:

Duc Theseus the streighte wey hath holde.
And to the launde he rideth hym ful right ...

(KnT, I.1690-91)

The Duke is intent on the pursuit of the animal - "This duc wol han a cours at hym or tweye" (KnT, I.1694) - which is in the habit of escaping through the grove and over a brook (KnT, I.1692-93). By means of the hunters' approach, then, the grove is seen from outside, as something that has depth, a place to be gone through. And an air of expectation builds up as the Duke approaches the place where the knights are fighting without knowing that they are there. It is a comparable situation to that which preceded the first sighting of Emelye by Palamon. Finally arriving at the "launde", the area where the grove is,³⁹ Theseus' eye is caught by the bright, flashing movements of the distant knights:

Under the sonne he looketh, and anon
He was war of Arcite and Palamon,
That foughten breme, as it were bores two.
The brighte swerdes wenten to and fro ...

(KnT, I.1696-700)⁴⁰

At first, Theseus is too far to distinguish separately the two knights - "But what they were, no thyng he ne woot" (KnT, I.1703) - but he spurs his horse and intervenes (KnT, I.1704-9).⁴¹

In Boccaccio, the discovery of the duelling knights is organised differently. Most noticeable is the absence of any description of approach. The grove is not seen from afar: the royal party is not motivated by the flight of a particular animal. Their activity is less deliberate, almost casual by comparison with Chaucer, and they are represented as being in the "boschetto" from the start (Tes., V.77-79). It is Emilia who first sees

Palemone and Arcita as she comes to the bank of a stream, and they take courage from seeing her. Eventually Theseus is called and he interrupts the duel (Tes., V.80-82). Boccaccio does not lose the opportunity to introduce a sighting of Emilia - a major source of spatial description in his poem - but the visual focus on the knights, the gradual narrowing down of an area of countryside to a particular spot, is less sharp than in Chaucer, the coming together of Theseus and the two heroes less vivid.

(ii) A Textual Confusion: 'Place'

There is a second journey to the grove, in the fourth book of the Knight's Tale, on the occasion of Arcite's funeral. But here, the emphasis is on ritual and pageant as the solemn procession moves towards its goal (KnT, I.2897-98). Some attention is paid to the dimensions of the pyre,

That with his grene top the hevene raughte;
And twenty fadme of brede the armes straughte -
This is to seyn, the bowes weren so brode.

(KnT, I.2915-17)

as also to its construction (KnT, I.2918), the sacrifices made (KnT, I.2933-50) and to the march of the Greeks three times "al the fyr aboute" (KnT, I.2952). But the cataloguing of trees (KnT, I.2920-23) and flight of the wood spirits (KnT, I.2925-28) strike an artificial note and indeed the whole passage remains relatively close to the account of the religious observances narrated in the Teseida (Tes., XI.13-58).⁴² The abiding impression is one of wilful desecration and desolation:

... the ground agast was of the light
That was nat wont to seen the sonne bright

(KnT, I.2931-32)

It is at this point in the poem, at the funeral of Arcite, that the significance of the grove as a place becomes most apparent. The emphasis on locus begins to build up in the earlier grove scene. Palamon first draws attention to the grove as more than a purely physical and circumstantial environment when he declares that Arcite shall either die or leave off loving Emelye, even though he has no power to enforce such a choice; "though that I no wepene have in this place" (KnT, I.1591). This place, the grove, takes on an associative value for Palamon, since it is where he has heard again his rival's declaration of love. Arcite acknowledges the necessity of deciding the issue where it has been raised:

... By God that sit above,
Nere it that thou art sik and wood for love,
And eek that thow no wepne hast in this place,
Thou sholdest nevere out of this grove pace,
That thou ne sholdest dyen of myn hond.

(KnT, I.1599-603)

It has become a matter of honour that the grove should be the site of their decisive duel, and accordingly it is there, "at tyme and place yset" (KnT, I.1635) that the knights meet the following day. After the death of Arcite, Theseus makes the most telling reference of all to the grove as a location that has meaning over and above its material existence. He pronounces:

That ther as first Arcite and Palamoun
Hadden for love the bataille hem bitwene,
That in that selve grove, swoote and grene,
Ther as he hadde his amoureuse desires,
His compleynte, and for love his hote fires,
He wolde make a fyr in which the office
Funeral he myghte al accomplice.

(KnT, I.2858-64)

It is a pleasing justification of the siting of the obsequies, and although Chaucer is following Boccaccio in having the grove

serve both as the material and situation for the pyre, he is at pains to embellish the brief account in the Teseida of Theseus' decision (Tes., XI.13).

It is clear from the text that it is the grove which receives consideration and emphasis as a place which is in some way informed by the pathos of the knights' destiny. It is given an atmosphere distinct from that of the tower and the lists. But its separateness tends to be blurred by two textual confusions, both arising from the further use of 'place' in other contexts and with other implications. For when Theseus arrives at the grove, separates the combatants, and ordains that they should undertake a more ordered trial of strength, he evidently appreciates that the grove has a special meaning in relation to the knights' star-crossed destinies:

And yet hath love, maugree hir eyen two,
Brought hem hyder bothe for to dye.

(KnT, 1796-97)

As if to celebrate the irony of the situation, he declares: "The lystes shal I maken in this place" (KnT, I.1862). The lists, it would seem, are going to be constructed where the grove is, thus destroying it while absorbing its special atmosphere.⁴³

Initially, Theseus' decision seems appropriate: he is to replace disorder with order. Halverson seizes on the idea with enthusiasm. The grove becomes a wilderness, where "an area is set off to be devoted to a ceremonial activity of civilized society".⁴⁴ Such an interpretation, while it may suit the author's general argument, is in conflict with what actually happens in the poem. The grove is not destroyed until Arcite's funeral, and it is quite crucial to the event that the grove

should, on that occasion, be intact, so that its destruction provides maximum effect. Furthermore, the fact that the atmosphere of the lists is at variance with that of the grove is as much a reason for keeping them separate as for combining them. The two places make the contrast between haphazard, wilful violence outside of the bounds of society and ordered, decisive, ceremonious conflict within the appropriate social and chivalric context.⁴⁵ Theseus' sense of propriety leads him to express concern at the spectacle of knights fighting like animals, neglectful of the rules of chivalry:

But telleth me what myster men ye been,
That been so hardy for to fighten heere
Withouten juge or oother officere,
As it were in a lystes roially.

(KnT, I.1710-13)

It would seem to be in the thematic and dramatic interests of the poem to keep the grove and lists as separate and distinctive places. The trouble springs entirely from Theseus' use of "this place" as if indicating the very spot on which the knights have fought. An interpretation of his meaning is inevitably coloured by the preceding uses of the word, and it is true that until this point, Palamon and Arcite have both used "place" to refer to the part of the grove where they fight. This is a narrow application that is not necessarily intended by Theseus. For "place" is not itself a specific term, being governed and defined by context.⁴⁶ It was suggested earlier that the Duke's approach to the grove sets it in a much wider landscape than that experienced by the knights within the wood. The grove to Theseus is part of the "launde" towards which he is riding; for the knights it is the here and now of a love conflict, but to him it is a wood through

which he chases wild animals (KnT, I.1688-93 and 1696). If "place" as referred to by Theseus is therefore taken in the wider sense of "launde" or area of countryside,⁴⁷ it becomes possible for grove and lists to coexist without infringing on each other's physical or atmospheric territory.

This interpretation of the place where the lists are built - near the grove but not in it - seems to be borne out, or at least not contradicted, by references to movement to and from Athens which make it clear that the site of the tournament is on the edge of the city, like the lists at Smithfield in 1390 which Chaucer, as Clerk of the King's Works, had responsibility for erecting.⁴⁸ This siting is implied in the descriptions of Theseus' procession to and from the tournament. To reach the lists "they passen thurghout the citee,/And to the lystes come they by tyme" (KnT, I.2574-75); and afterwards

Duc Theseus, with al his compaignye,
Is comen hoom to Atthenes his citee ...
(KnT, I.2700-1)

The second, confusing use of "place" takes effect as soon as the lists begin to take shape:

And shortly to concluden, swich a place
Was noon in erthe, as in so litel space ...
(KnT, I.1895-96)

When Arcite later prays to Mars that Emelye might be his, he asks that "I moot with strengthe wyne hire in the place" (KnT, I. 2399). Similarly, when Palamon arrives at the tournament he enters "estward in the place" (KnT, I.2585); Arcite, before his fall, "priketh endelong the large place" (KnT, I.2678) and is then "yborn out of the place" (KnT, I.2694). This emphasis on place might seem to bear out the idea that the lists are in fact built

exactly on the site of the grove, as if Chaucer is repeatedly drawing attention to the significance of that fact. There is no reason why these uses of "place" should not be allusive, as well as descriptive, as long as the word is construed with the larger sense of 'area of countryside' in mind. It hardly seems likely that Chaucer would wish to imply that the lists are where the grove was, and then proceed to narrate the destruction of the grove as if the lists were never there. So although an ambiguous use of "place" is possible in these instances, the primary meaning lies elsewhere. The inclusion of the definite article in four of the five usages indicates that the word is being employed as a specific naming device. It denotes, quite simply, "the grassy ground of the arena within the lists".⁴⁹

(iii) Associated Ideas: Free Will

To return to the grove. It has already been suggested that its nature and atmosphere - its purpose - is quite distinct. It is associated with disorder, and if it is possible to attach it as an image with a key part of the poem's metaphysical content, as the tower is connected to the arbitrariness of fate, then the proper correlate of the grove, which is not enclosed and which allows for movement, is the exercise of individual will. Both knights believe that, given favourable circumstances, they can win Emelye by an act of will. "Thow maist to thy desir somtyme atteyne" (KnT, I.1243) says Arcite of Palamon, while Palamon thinks that Arcite's self-liberating act will take the form of a war on Athens (KnT, I.1285-90). It is with a sense of decisiveness, of coming to terms with the situation and taking deliberate action, that Arcite goes back to Athens during his

exile:

...to Atthenes right now wol I fare,
Ne for the drede of deeth shal I nat spare
To se my lady, that I love and serve.

(KnT, I.1395-97)

Similarly, Palamon appears to take matters into his own hands when he escapes from prison. A feeling of self-determination is conveyed in the factual, terse description of the event:

... soone after the mydnyght Palamoun,
By helpyng of a freend, brak his prisoun
And fleeth the citee faste as he may go.

(KnT, I.1467-69)

At the same time, Chaucer is careful to indicate that such seemingly 'free' acts exist within the framework of chance and fate. Palamon and Arcite are both mistaken in thinking that either of them can materially advance their prospects of winning Emelye: Arcite moves from Thebes to Athens only after prompting from Mercury (KnT, I.1385-92); and Palamon escapes "by aventure or destyne" (KnT, I.1465). There is also an awareness on the part of Arcite that the exercise of will is an inadequate response to experience since it cannot effect or affect pre-ordained events. Man desires to better his condition without knowing how all has already been arranged for the best; so that even if his desires are fulfilled, his condition may worsen (KnT, I.1255-74). "We faren as he that dronke is as a mous" (KnT, I.1261), oblivious to the ramifications and divine context of our acts.⁵⁰

Much the same tension informs the discussion of love. "Love is free" (KnT, I.1606) declares Arcite, but like will the freedom it confers is illusory. It is "a gretter lawe ... Than may be yeve to any erthely man" (KnT, I.1165-66)⁵¹ and therefore to some extent in conflict with the forces that shape the universe for

"positif lawe and swich decree/Is broken al day for love in ech degree" (KnT, I.1167-68); and it disrupts the customs on which the social order is based: "love ne lordshipe/Wol nocht, his thankes, have no felaweshipe" (KnT, I.1625-26). It is not the same stuff, this, on which the cosmic order and ultimately earthly order depends, the "faire cheyne of love" (KnT, I.2988).

Love provides the setting in which man imagines he can exercise and enjoy freedom. But the experience of love brings with it its own dictates and restrictions. And man is not free not to love: "A man moot nedes love, maugree his heed" (KnT, I.1169). Elsewhere, the paradoxical qualities of love are brought out in a comparison between the lover and the prisoner (KnT, I.1337-39): Theseus refers to the restraint caused by love as one "that hath ben caught ofte in his laas" (KnT, I.1817),⁵² while the temple of Venus shows "The riche Cresus, kaytyf in servage" (KnT, I.1946). On his death bed, Arcite recognises that the exercise of free will involves more than the fulfilment of desire in love. He asserts that his soul and the ideals of the chivalric life, of which 'freedom' is one, are controlled by Jupiter:

That is to seyen, trouthe, honour, knyghthede,
Wysdom, humblesse, estaat, and heigh kyn-rede,
Fredom, and al that longeth to that art ...

(KnT, I.2789-91)

And in Theseus' speech at the end of the poem, wilfulness is condemned as a form of rebellion against the wise acceptance of divine ordinance:

And whoso gruccheth ought, he dooth folye,
And rebel is to hym that al may gye.

(KnT, I.8045-46)

It is best to accept fate and chance in a spirit of trustful

resignation, for "The contrarie of al this is wilfulnesse" (KnT, I.3057).

Admittedly, the function of free will receives less attention in the Knight's Tale than the two dominant themes of chance and destiny, "aventure" and "cas". But it is precisely in the intermediary area of illusory self-determination that Palamon and Arcite experience most fully the futility of striving against universal ordinance. The grove exists somewhere between the tower and the lists, between chance and fate. Wilfulness has played its part in directing them to the grove and it is while there that they attempt to solve their problems through a matching of arms without reference to chivalric and social order and convention, and as if their own unaided efforts can decide the matter:

And if so be that thou my lady wyne,
And sle me in this wode ther I am inne,
Thow mayst wel have thy lady as for me.

(KnT, I.1617-19)

It is all pointless. Neither Arcite nor Palamon, were either of them to win, could win Emelye in their state of banishment, rebellion and ignorance. Freedom can be conferred, not taken, and significantly it is the Duke who does so: "everich of you shal goon where hym leste/Frely, withouten raunson or daunger" (KnT, I.1848-49). The abiding impression is that freedom through wilfulness, as it manifests itself in the pursuit of love, is indeed deceptive and illusory. The grove is the place where its consequences are confronted. As with the tower prison, Chaucer has drawn attention to the grove and its associated ideas by redesigning his source material and giving a three-dimensional accent to this key locus:

D. THE LISTS

(i) The Designs of Boccaccio and Chaucer

In the Teseida, the tournament between Palamone and Arcita takes place in an amphitheatre which already exists as part of the classical scenery. It is not specifically built for the occasion. The amphitheatre is first mentioned after the knights who are to fight have arrived in Athens. Teseo shows them "la grandezza/del teatro" (Tes., VII.1). He then addresses them and divides the assembly into two opposing forces; and the knights disperse to prepare for the forthcoming battle (Tes., VII. 11-21). Although the magnificence and design of the theatre are described, by the time of the tournament proper its impact as a place where significant events are to take place is somewhat diluted.

Boccaccio devotes three stanzas to the design of the theatre (Tes., VII.108-10). It is situated a little outside the "terra" (Tes., VII.108), presumably the town of Athens, and measures a mile in circumference with a high wall and two gated entrances at east and west. Within is a large circular plain surrounded by five hundred tiers of stone seats that allow everyone a fair view.⁵³ Boccaccio is at pains to stress the classical background: "le genti sedeno/a rimirare gli arenarii diri" (Tes., VII.110).

Chaucer incorporates most of the architectural details, adding a ditch and toning down some of Boccaccio's enthusiasm for the ancient world. The English poem describes the arrangement of the seating with an implication of social order that contrasts with the disorder associated with the grove. The shape too, a perfect O, seems in the context to be ideal.⁵⁴

Round was the shap, in manere of compas,
Ful of degrees, the heighte of sixty pas,
That whan a man was set on o degree,
He letted nat his felawe for to see.

(KnT, I.1889-92)

The use of "degree" here alerts the reader to its possible social implications that are encountered in other parts of the Knight's Tale.⁵⁵ And a further striking difference from Boccaccio is found in the account of the theatre's construction, now more medievally referred to by Chaucer as 'lists'. It is built especially for the unique occasion of Palamon's fight with Arcite, Theseus sparing no cost to employ the best craftsmen, designers and artists (KnT, I.1897-901); nor are the lists entered before the tournament proper. Thus the lists have conferred on them an unusual amount of attention and care so that the importance of this newly defined place can hardly be overlooked.⁵⁶

Chaucer's alteration of the site of the temples of Venus, Mars and Diana is even more impressive. In the Teseida, Arcita visits a temple dedicated to Mars at an unspecified place near the city. It is not associated in any way with the theatre (Tes., VII.23). His prayer is described as travelling to the Thracian fields "per fare il dato ofizio,/tututta nello aspetto lagrimosa" (Tes., VII.29), where she sees the dwelling-place of the god and presents the knight's petition. Mars responds with a sign in Arcita's temple that assures him of some success (Tes., VII.39-41). Similarly, Palemone approaches a separate temple of Venus "d'Attene" and his personified prayer travels in turn to Mount Cithaeron which is described through her eyes (Tes., VII.42-65). Venus grants Palemone's request and acts upon it, but not before she has disputed with Mars (Tes., VII.67), and there

is no corresponding sign in the temple (Tes., VII.68-69). Finally, Emilia visits a temple of Diana of unstated location and offers her prayers (Tes., VII.70-87). In return, Diana's choir appear and announce the result of her intercession, the arrows and bow of Diana's statue move, and the fire extinguishes itself, leaving Emilia perplexed (Tes., VII.88-93).

Thus attention is drawn away from the lists during the preparations for battle. Boccaccio mentions three temples in three separate places, and two prayers involve excursions even further afield, to Thrace and Mount Cithaeron. In the Knight's Tale, however, there is a conflation of these disparate elements so that the place - the lists - remains the same and thus gains a developing atmosphere of significance and import. For Chaucer redesigns the exterior of the building to incorporate the three temples or oratories. Above the east gate is an altar and oratory to Venus, above the west gate one to Mars, and on the north side of the wall "in a touret on the wal" (KnT, I.1909), one to Diana. The decoration of each of these rooms represents pictorially what Boccaccio describes literally: Mount Cithaeron (KnT, I.1918-54) and Thrace (KnT, I.1967-2040). Chaucer balances the set by including a painting of Diana's history (KnT, I.2051-74); and adds in each case a description of the statues of Venus (KnT, I.1955-66), Mars (KnT, I.2041-50) and Diana (KnT, I.2075-88).⁵⁷

When Palamon, Arcite and Emelye visit the shrines at favourable times to pray to their respective gods, they each receive a visual token that their demands are not unheeded. The statue of Venus shakes and makes a sign (KnT, I.2265-66); Emelye's

sacrificial fire flares and extinguishes itself, the brands oozing blood, Diana appears and the arrows of her statue clatter (KnT, I.2331-60); and in the temple of Mars the door makes a noise, the fire burns bright, there is a sweet smell and the murmur of "Victory!" (KnT, I.2421-34). The influence of the gods is therefore felt within the fabric of the lists. It has become a place meriting their special attention; immediately after the three prayers, the outcome of the tournament is disputed and decided between Mars, Venus and Saturn (KnT, I.2438-78). So Chaucer's streamlined integration of Boccaccio's plot is not just a structural revision that advances the action with greater economy. By concentrating attention on the place and space of the lists he is forming a prominent visual image that articulates the operation of fate in the lives of Palamon, Arcite and Emelye.⁵⁸

(ii) The Tournament

Once the battle is under way, Boccaccio's attention to the spatial coherence of the theatre, although much in evidence, is of a different kind to that of Chaucer. The Teseida describes how Arcita and Palemone enter from different sides with their followers (Tes., VII. 114-21); Arcita then sees "quasi a sè davanti" (Tes., VII.122) Emilia and receives inspiration from the sight (Tes., VII.123-27). Palemone follows suit (Tes., VII.128) before both of them turn attention to the conflict (Tes., VII.129). Teseo now descends through the crowds "largo alle genti faccendosi fare" (Tes., VII.130) to announce the rules of combat.⁵⁹ The fight sequence that follows in Book VIII is a virtuoso performance in which Boccaccio demonstrates his fascination for

the martial aspects of the tale. His technique is to concentrate on individual conflicts, placing them against a general background of dust, confusion and noise. Occasionally, the account is punctuated by a descriptive touch that relates to perception and gives some impression of depth:

Nullo dintorno alcun di lor vedea,
se non come per nebbia ne' turbati
tempi si vede, e l'un non conoscea
l'altro di loro, e gran colpi donati
erano in danno, che ciascun credea
dare a color cui aveno scontrati ...

(Tes., VIII.10)

Towards the end of the passage, the point of view shifts from the arena and the battle itself to the royal spectators.⁶⁰ Arcita, resting from battle, raises his eyes a second time to Emilia, and is revived (Tes., VIII.79); Egeus watches "ammirando ... con vista aguta", wishing he could take part, noting the feats of arms, and weighing up the outcome (Tes., VIII.89-92); Hippolyta watches, and so does Emilia, considering her fortune in love (Tes., VIII.93-109), while the rest of the people gaze on with various emotions (Tes., VIII.110). Mars and Venus observe "d'alto loco" (Tes., VIII.112), and as a result of their interventions, Arcita becomes the visual focus. After Palemone's capture, Emilia prays for Arcita's success as she watches him (Tes., VIII.124-28); both she and the crowd watch with horror as the Fury unhorses the victorious knight (Tes., IX.1-12); and the victors and royal family gather round the wounded Arcita to console him as Emilia gazes into his battle-stained face (Tes., IX.17-19).

In the Teseida, space is organised to convey the mêlée of battle, to sustain the love alliance between Arcita and Emilia, and to emphasise that Arcita is the more favoured of the two heroes.

Chaucer makes a radical revision of the battle scene, both in terms of length and in the way it is made to serve different priorities. In the first instance, the entry of Palemone and Arcite through opposite gates (and under the oratories of their respective gods) and at the same moment is used to suggest the equality of the knights' rival claims (KnT, I.2581-89). The symmetry of the theatre and the spectacle become an image of order and justice:

For ther was noon so wys that koude seye
That any hadde of oother avauntage
Of worthynesse, ne of estaat, ne age,
So evene were they chosen, for to gesse.
(KnT, I.2590-93)

The two sides formally arrange themselves in two ranks, listen to the heralds and the gates are shut (KnT, I.2594-97). The theatre of action, where the fate of the knights will be decided, is thus physically defined.

The point of view while the battle is in progress is certainly not on the field or 'place' itself. It is more that of a spectator but not, as in Boccaccio, that of any one in particular. Chaucer's description jumps from detail to detail as if the eye's attention is being caught by simultaneous and rapid movements. This is achieved by the repetition of prepositions and personal pronouns:

In goon the speres ...
In gooth the sharpe spore ...
Ther shyveren shaftes ...
Out goon the swerdes ...
Out brest the blood ...
He thurgh the thikkeste of the throng ...
Ther stomblen steedes ...
(KnT, I.2602-13)

Chaucer simplifies matters by omitting the names of the various subsidiary knights and the incidents in which they are involved; instead he concentrates on Palamon and Arcite (KnT, I.2623-35)

and the related activity of the two warriors whom he has previously introduced, Lygurge⁶¹ and Emetreus (KnT, I.2636-51), who are involved in the capture of Palamon.

The tournament comes to an end and Arcite is proclaimed the victor (KnT, I.2652-62). Mars has not intervened personally in the conflict, although his knight has won the day. The watchful Venus is sorrowful and her concern at the outcome is described in a detail that again relates physically the forces of fate to the lists:

... What dooth this queene of love,
But wepeth so, for wantynge of hir wille,
Til that hir teeres in the lystes fille?

(KnT, I.2664-66)

Saturn consoles her and sends a Fury through the agency of Pluto to unhorse Arcite just as he is gazing triumphantly and longingly at Emelye (KnT, I.2676-91). In this case, Chaucer has effectively combined two incidents found separately in the Teseida: Emilia's deciding in favour of Arcita and rewarding him with an affectionate glance - "And she agayn hym caste a freendliche ye" (KnT, I.2680) - and the arrival of the Fury. Chaucer makes it seem that Arcite is simply not looking where he is going.

This characteristic feature of Chaucer's poem, to make the narrative and descriptive elements more compact, more economical, imparts to the English poem at this juncture a greater sense of purpose. Chaucer conveys the violence of battle, but he does not linger on it and presents it from a single standpoint; Arcite looks at Emelye once, and then at a highly dramatic moment. There is quantitatively less space involved in Chaucer's account of the tournament; but if depth is used sparingly it is used efficiently. The closed doors of the lists recall the earlier

description of an enclosing edifice, the tower; the one sight of Emelye provides a brief glimpse of the joy and 'freedom' for which the two knights have been striving.

(iii) The Meaning of the Lists

These differing attitudes are not just a question of creative preferences or aesthetic consideration in the representation of a site for a tournament. Very rapidly, Chaucer's lists cease to function as merely a physical environment. For the unique building, constructed as a consequence of the grove conflict, shows clearly and literally how the behaviour of the knights - in the battle and elsewhere - is circumscribed by the forces of destiny.⁶² To a certain degree, Palamon and Arcite are aware of this, having prayed to the deities and received tokens in return. The lists is the place par excellence where the rivals experience the effects of fate most directly. To this extent, their experience is more 'real', it has a wider perspective than that associated with the tower and the grove, because here the activity of the fate-controlling gods is made manifest. In the tower, Palamon and Arcite were aware of the apparently arbitrary effects of destiny on the human condition; in the grove they attempted to ignore destiny through the exercise of will; but both chance and will, if divorced from the context of fate where they properly belong, were shown to be illusory.

It was apparently the intention of Theseus that the lists and the events within them should reflect a pantheon at once ordered, benevolent and just. Yet the incidents leading up to the tournament give little ground for optimism: each of the three deities appears to promise success, and they squabble over the outcome of the

contest (KnT, I.2438-42). Initially, though, it seems that the non-lethal battle has had the desired effect. Arcite is triumphant, and so wins Emelye (KnT, I.2636-62). But the gods are not to be constrained by human endeavours to anticipate or organise their activities. With the unhorsing and subsequent death of Arcite, the very existence of a benevolent and just order is again brought into question.⁶³ The Theban women are bewildered at the turn of events. In their anguish they ask absurd questions:

'Why woldestow be deed,' thise wommen crye,
'And haddest gold ynough, and Emelye?'

(KnT, I.2835-36)

The wise Egeus has little to offer but the most obvious of comments on man's mortality:

'Right as ther dyed nevere man,' quod he,
'That he ne lyvede in erthe in some degree,
Right so ther lyvede never man,' he seyde,
'In al this world, that som tyme he ne deyde ... '

(KnT, I.2843-46)

Theseus and the Athenians cling tenaciously to their love of ceremony, but it seems that they do so now more to express solidarity in the face of an inexplicable tragedy than to assert their belief in a universe similarly ordered and devout. It is in a mood of despair and anger, almost of revenge, that the wood for Arcite's pyre is cut from the grove where he met Palamon in armed combat. The place is desecrated, the local gods and spirits driven away:

... the goddes ronnen up and doun,
Disherited of hire habitacioun,
In which they woneden in reste and pees,
Nymphes, fawnes and amadrides ...

(KnT, I.2925-28)

The sacral funerary rites are enacted in a spirit of defiance rather than resignation.

(iv) The Ending of the Poem

It is, therefore, an abrupt transition to the serene ideology expressed by Theseus at the end of the Tale.⁶⁴ The events of the narrative, which chiefly concern the experiences of Palamon and Arcite, consistently show that arbitrary events and powers beyond control rule their lives. Yet it is the declared faith of Theseus that in fact things are otherwise. His theology seems not to answer to their experience, although there is an attempt, in general terms, to recognise the validity of their plight. He does not deny the profound pathos of life, of happiness that must lead to misery and death. Although nature enjoys a cyclical, Fortune-like process, which transforms bad to good as well as good to bad, it is not everlasting:

... speses of thynges and progressiouns
Shullen enduren by successiouns
And nat eterne ...

(KnT, I.3013-15)

Jupiter controls this process and, given its inevitability, it is pointless to strive against it (KnT, I.3039-40). Theseus, like Egeus, counsels acceptance:

Than is it wysdom, as it thynketh me,
To maken vertu of necessitee ...

(KnT, I.3041-42)

In such circumstances, the most that can be hoped for is that death will come at a propitious time. Arcite, says Theseus, could not have died better:

... a man hath moost honour
To dyen in his excellence and flour
Whan he is siker of his goode name ...

(KnT, I.3047-49)

There are therefore some grounds for consolation, and Jupiter ought to be thanked for his "grace" in allowing Arcite to die in such a way (KnT, I.3058-69).

It is difficult to reconcile these Boethian sentiments⁶⁵ with the harsh realities of the narrative, for Theseus gives to Jupiter a power and a prominence that he has not enjoyed before. Jupiter had been active in quelling the dispute of the gods, but it is Saturn who is the effective arbiter (KnT, I.2438-46). Arcite, on his death bed, appropriately recommends his soul to Jupiter, the god of concord,⁶⁶ once he restored his friendship with Palamon (KnT, I.2786-95). So Jupiter's earlier appearances hardly prepare the way for his emergence in the closing lines of the poem as the ultimate controlling power for good in the universe. It is almost as if there are two Jupiters, one a relatively ineffectual pagan deity, and the other the Christian God.

Perhaps there is a way out of some of the difficulties posed by the ending of the Knight's Tale. Theseus maintains, in spite of appearances to the contrary, that the universe is benevolently and harmoniously ruled through the "faire cheyne of love" (KnT, I.2988). This bond of love unites all creation, and includes the relations between human beings. Theseus institutes a social and civic expression of this principle when he unites in marriage Emeleye and Palamon, an act which at the same time confirms the peaceful association of two previously hostile

cities, Athens and Thebes. Now, when Palamon and Arcite were first imprisoned, they also enjoyed a bond of mutual friendship, being cousins and sworn brothers (KnT, I.1131-32). Arcite, having seen Emelye after Palamon, insists on breaking that bond, much to the distress of his fellow-knight. Palamon reminds Arcite of his obligation:

I loved hire first, and tolde thee my wo
As to my conseil and my brother sworn
To forthre me, as I have toold biforn.
For which thou art ybounden as a knyght
To helpen me, if it lay in thy myght,
Or elles artow fals, I dar wel seyn.

(KnT, I.1146-51)

Arcite is cheerfully false, asserting that "Love is a gretter lawe ... Than may be yeve to any erthely man" (KnT, I.1165-66). It could be argued that by reneging his former knightly oath, Arcite is interfering with the principle of amicable co-existence, as later expressed in the speech of Theseus. As a consequence, he unleashes the discord and rancour with which the body of the Tale is concerned. It is therefore just, and an indication of the ultimate nature of the world order, that Arcite dies. Before he does so, he perceives his error and restores the bond of love with Palamon by giving him the hand of Emelye (KnT, I.2783-97). Once the cause of discord is remedied, then the way is free for Palamon's eventual marriage with Emelye and this is also just because Palamon's response to love has always been of the same, devout, resigned kind recommended by Theseus, in his speech, as an appropriate attitude to the vagaries of experience (KnT, I.1104-11).⁶⁷

But even if it is possible to present a convincing case for the thematic unity of the Knight's Tale and its ending, there

remains an inescapable sense of aesthetic displacement. The speech of Theseus belongs in the realm of ideals, the action of the Tale in the world of action and emotion, with no bridge between. Neither of the protagonists perceives, on the basis of his experience, the truth which Theseus declares in his speech. The Tale questions, rather than asserts, that truth. Perhaps the fault - if that is the right word - can be best explained in the same terms as those which have been used in this chapter to discuss some aspects of the narrative. I have argued that each of the three main stages in the adventures of Palamon and Arcite is provided with a recognisable locus, where a particular sense of space, introduced by Chaucer, has contributed to the expression of the dominant ideas. First, helpless imprisonment by Fortune and Love was conveyed by the containing castle tower. Then, the exercise of free will outside of the bounds of society was expressed through the wooded grove. Finally, the circumscribing lists with their oratories were suggestive of Theseus' attempt to see human endeavour within a transcendent, ordered construct. That the final attempt by Theseus to explain the world order is unsatisfactory is because his ideas are not embodied, in a comparable way, in a 'controlling image'; they have no root in a distinct locus with its own sense of space. In Boccaccio's version of Arcita's flight through the spheres, Chaucer had available a model for embodying a 'perspective' on the human world of woe and fickle fortune.⁶⁸ That he chose not to use it in the Knight's Tale is perhaps indicative of the sort of emphasis he wished to make, on the truth of experience, not faith. As we have seen, it is in the ending of Troilus and Criseyde, and

with additional recourse to a Dantean form of space, that Chaucer adequately expresses in visual terms the sort of divine order to which Theseus refers.

CHAPTER 7:

THE 'CANTERBURY TALES', FRAGMENT I - THE 'MILLER'S TALE'

A. INTRODUCTION

(i) The Fabliau. Background

In a previous chapter, the influence of French poetry on Chaucer was given some consideration, but the influence of the fabliaux postponed.¹ The two Tales next to be examined, the Miller's Tale and Reeve's Tale, derive from the fabliau tradition and some preparatory remarks on the genre are now in order. The fabliaux have always been noted for their realism, and it is in consequence of this trait that they may be seen as stimulating in Chaucer a descriptive literalism in which he attempted to reproduce the three-dimensional appearance of the visual world. These preliminary remarks will therefore focus on some accounts of realism in the fabliaux.

Bédier, in the first major study of the genre, describes the fabliaux as "excellents historiographes de la vie de chaque jour".² Their distinctive qualities are pace, verisimilitude, naturalism and a lack of artificiality and sophistication, especially in the treatment of character psychology and motivation.³ If 'realism' is to be used to cover such qualities, then some definition of the term is necessary, especially so since the word was coined to describe certain aspects of the nineteenth century novel, the aesthetic of which is in many ways different from that of the fabliau. Wellek defines realism as "the objective representation of contemporary social reality".⁴ He elaborates by noting that low life, unattractive details and revolting descriptions are legitimately included. There is, too, an implied lesson or criticism of a social kind, coupled to a marked absence of direct authorial commentary. The inhabitants of realistic fiction tend

to be recognisable types, but they are placed against a specific historical background.⁵

Although Wellek bases his remarks on modern literature, his definition of realism would seem to account for many of the features of the thirteenth century fabliau. The odd man out is "contemporary social reality". Broadly speaking, the fabliau is so concerned with the sequential progression of the story, with animating the participants, that the overall impression is not of specific but of general circumstances, not of unique but of typical situations devoid of recognisable historical detail. Nykrog, in his respected study, also lodges objections to the use of 'realism' to describe the mode in which fabliaux are written. He indicates two current usages of the word. One means "la peinture exacte d'après nature",⁶ the other describes a type of nineteenth century writing. The application to fabliaux of the second definition Nykrog dismisses as anachronistic. The first meaning of realism seems to fit the fabliaux, he suggests, but in fact realism is not the key to the style in which they are written. The characters, for example, are too often like caricatures to be considered realistic.⁷ Nykrog argues that once the aristocratic audience of the fabliaux is taken into account, the stories emerge as grotesque rather than realistic. They are designed to reflect in a disparaging manner all that is opposed to such aristocratic ideals as nobility, courage and physical beauty.⁸

Muscatine, although he attributes a bourgeois audience to the genre,⁹ also notes the predilection of the fabliau for exaggeration, caricature, grotesque and satire. He sees these;

nevertheless, as realistic elements based on a conventional style. Muscatine is careful, in his use of 'realism', to discard the "reportorial detail" with which the realism of modern fiction is associated.¹⁰ Most interesting from the present point of view is what Muscatine has to say about the physical circumstances of the fabliau world, circumstances which make a major contribution to the realistic effect. He makes the important observation that "Particularizing detail is most often brought in with a view towards practical utility in the action".¹¹ Many descriptions are ad hoc, introduced unannounced when required by the plot. Muscatine adds that within this world, action, movement and potential energy are important constituents. He concludes:

Behind the comedy and the caricature there is a spirit of intense practicality, a myopic circumscription of the attention to clock time and local space, a reckoning with tangible force, concrete motive, physical peculiarity. It is a style designed to evoke a naturalistic, material world, and little more. 12

What are the implications of the realism of the fabliaux for Chaucer's representation of the visual world in the Miller's Tale and Reeve's Tale? Chaucer retains some of the characteristic features of the genre, but in other respects he abolishes or subverts them. The pace is certainly there, if anything in a more intense state. Where there is occasion for slapstick 'business', Chaucer devotes meticulous attention to the details of its operation in order to make a farcical outcome seem likely.¹³ The same might be said of the general action of the Tales, where the detail, the particular circumstance, is reworked, not in the interests of realism in the nineteenth century sense, but in order to realise, to make substantial, the basic outline of plot

and character. It is as if Chaucer deliberately rethinks the action and the detail of his raw material to determine, and then represent, what it is like to do certain things, handle certain objects. Nor do details appear out of the blue. They are carefully introduced at an early stage so that their appearance does not take the reader by surprise. The material world of the fiction is made familiar before it becomes the scene of extraordinary events.¹⁴ This is also true of important locales within the Tales. If they are to play a significant part in the unfolding of the plot, then they are given descriptive emphasis in advance of any action that may occur there. Again, Chaucer introduces into the fabliaux sophisticated backgrounds and complex motivation. The plots of the Miller's Tale and Reeve's Tale appear to belong inextricably to the towns in which they take place, while the protagonists are seen in part as products of local society who react in idiosyncratic ways to the particular situations in which they find themselves.

(ii) Sources and Analogues

The immediate source of Chaucer's plot for the Miller's Tale is not known. Thompson suggests that it may have been an oral version of the story or a lost French fabliau.¹⁵ The analogous texts that have survived provide sufficient material for the framework of Chaucer's poem. The motifs of the impending flood, the misdirected kiss and the branding are all present in a Flemish verse fabliau of the second half of the fourteenth century.¹⁶ This and later versions base the story round the rival claims upon a lustful young woman of her lovers. She is generally the wife of a carpenter or rich merchant,¹⁷ and she

deceives her husband either while he is absent or while he has taken refuge from the supposed deluge in a tub hanging in the beams.

In their conception of the theatre of action, the analogues are economical in the extreme.¹⁸ The scene is set in a single undefined room, the essential details of which are mentioned as need dictates: a projecting window, a door, the beams. Nor do the analogues use physical description of the participants to any great extent. An Italian novellino by Masuccio of 1476, for example, states baldly the essential facts: Viola the heroine was charming and very beautiful, "vaga e bellissima".¹⁹

Although Chaucer has based his Tale on the received tradition, he has altered and elaborated it in several important respects. The most striking innovation to the plot is the inclusion of the favoured lover within the household.²⁰ This alteration accentuates the importance of the interior to an unprecedented degree. The place of the student within the household, the courting of Nicholas and Alison, the deception of John, the beams and branding episodes are all now carefully described and articulated. Chaucer also introduces a psychological and social interest unknown to the analogues. The jealous possessiveness of the husband, the physical attraction of Alison, the sense of one-upmanship between the clerk and the carpenter, the rôle of the various figures within the township, are all features found only in the Miller's Tale.

(iii) Procedure

The sense of space which Chaucer creates in the Miller's Tale is

occasional and episodic, but it is also purposeful. It is conveyed in a complex way through the many faceted reality which he develops from the fabliau tradition. To analyse its presence and effects, I shall begin with a basic component, the personal appearance of the characters. Their descriptions, and the attention given to bodily touch and movement, are fundamental in creating an impression of a three-dimensional world. I shall then proceed to examine the physical circumstances in which these solid, dynamic figures live and move, especially the carpenter's house and Nicholas's chamber, but also the neighbouring street and the town of Oxford. An account of the action of the Tale will form part of the discussion of persons and circumstances. Finally, I shall attempt to show that Chaucer's use of space in the Miller's Tale is not merely an aspect of its realism, but a carefully articulated component of its meaning.

For an awareness of the spatial content of the Miller's Tale can help to modulate the reader's appreciation and interpretation of the poem. The third dimension is certainly a function of Chaucer's literalism: in describing realistically objects, persons and their relationships, he evokes a spatial context. But in examining how space is represented, it will be impossible to avoid the question of meaning. Chaucer often appears to create a three-dimensional effect because he wishes to give substance both to his plot and to its themes. The relatively sophisticated demands which Chaucer makes of his source include and require a spatial design that acts as both context and vehicle of his intention.²¹

B. PERSONS

(i) Bodies

In the portrayal of character the sense of physical presence is strong. Alison is described as eighteen years old, beautiful but wild. She is the sort of wife who makes the carpenter fear for her fidelity, especially since he is so old. And John's fears have a good foundation. Alison's eye is "likerous" (MillT, I.3234), she is "wynsyng" (MillT, I.3263), wayward or skittish. These facts of the woman's character are conveyed in a handful of lines and provide all that is necessary for an understanding of Alison's later action: she does exactly what is expected of her, and deceives John. But the narrator actually devotes some thirty-eight lines of sustained description to the appearance of the carpenter's wife. He stresses the desirability of her alluring body, and lingers on details of her face and clothes (MillT, I.3233-70).

It does not necessarily follow that a description of appearance confers life on the figure concerned. The poet may merely wish to establish the identity of a type and there are common rhetorical formulae for describing beautiful women,²² formulae which Chaucer uses elsewhere.²³ Brewer is right to stress that the portrait of Alison "depends upon acquaintance with the convention for its full effect",²⁴ for Chaucer has inverted or rather subverted the rhetorical tradition by describing a carpenter's wife as if she were an ideal beauty.²⁵ Brewer emphasises the strong ironic tone of the descriptive statements. Alison's forehead is bright, like the ideal beauty's, but it is the brightness of newly forged coin; her

body is noble and slender, but like a weasel; and so on.²⁶ The final effects of such ambivalence are greater realism and vivacity, for the items with which the woman is compared are down to earth objects, restive animals, that bring out the real demeanour and pretensions of a country bred girl.²⁷

There is further assault on convention that tends in the same direction. Typically, the details of a woman's appearance in medieval literature are catalogued according to a strict order, beginning at the head, and descending down the body to the feet.²⁸ Chaucer ignores orthodoxy, begins at the waist and notes details as if in spontaneous visual reaction to the appearance of Alison. So the crucial means of 'fleshing her out' is not just found in ambivalent statements and naturalistic comparisons, but also in the way the description is organised. The Miller directs the eye of his audience in a sexual response to the carpenter's wife.²⁹

The reader is first alerted to the general attractiveness of Alison: she is fair; and then to a more basic reaction: she has a body "As any wezele ... gent and smal" (MillT, I.3234). From this point on it is as if the eye of the beholder is being involuntarily stimulated by a growing desire. Attention focuses on the woman's waist and the belt that circles it, then on her apron "as whit as morne milk/Upon hir lendes" (MillT, I.3236-37). The body beneath the clothes is the reason for looking. The eye jumps to Alison's smock, also white, embroidered at the collar, suggestively, within as well as without (MillT, I.3238-40). She is being looked up and down. The observer notices that the tapes of her headdress are of the same material as the collar (MillT, I.3241-42). Here is the eye's habitual tendency to

match and compare colours. From the voluper, the glance falls naturally enough on the headband or filet, "set ful hye" (MillT, I.3243) and exposing the forehead in which Alison takes such a pride.³⁰ Momentarily the description follows the traditional movement from forehead to eyes and eyebrows but it is the promise that the eyes hold in store that receives the emphasis: "And sikerly she hadde a likerous ye" (MillT, I.3244). The psycho-sexual element now comes to the fore. Alison is like a new-ripe pear, as soft as lamb's wool (MillT, I.3247-49).

Desire becomes more specific as attention focuses on her girdle and purse with, one feels, more interest in what lies beneath (MillT, I.3250-51).³¹ The Miller inserts an expression of general approbation (MillT, I.3252-54) before returning to Alison's face and the brightness of her hue (MillT, I.3255-56).

The Miller now amplifies his theme. Not only is the woman delightful in body but also in manner and accomplishments. She can sing, skip and play. But the eye returns compulsively to the subject of the description, to the sweetness of Alison's mouth (MillT, I.3261-62), her tallness (MillT, I.3264) and then again to her clothes. She wears a large brooch on her lower collar and finally the Miller offers the tantalising detail of Alison's shoes, "laced on hir legges hye" (MillT, I.3265-67).

By a roundabout route that disrupts conventional forms of description, the audience is presented with a detail that, although commonly found at the end of more traditional portraits, in this case only prompts the eye to roam once again over the woman's body.

Chaucer has portrayed Alison as visually present, revealing her as if to the scanning eye of a desirous onlooker. The

treatment is appropriate. By incorporating this full, modelled conception in the poetry, he has added force and immediacy to the young wife's existence. Her almost palpable attractiveness has its effect on the audience as well as on Nicholas and Absolon. The Miller feels the need to call attention to the story proper. It is as if he is aware of the mesmerising effect of Alison. "Now, sire," he insists, "and eft, sire, so bifel the cas,/That on a day ... " (MillT, I.3271-72). And the Tale, after this fascinating vignette, can continue.

No other participant in the Tale has the same sort of impact. The description of Absolon is vivid but conventionally organised. It begins with the detail of his carefully parted, curled golden hair, splaying from his head like a fan (MillT, I.3315). Absolon's complexion is ruddy, his eye grey. Attention drops from head to feet and the shoes which are designed like the window tracery at St. Paul's (MillT, I.3318). The description then takes account of other items of clothing, treating them from the legs upwards: red stockings, blue kirtel, white surplice. It is true that items of dress and appearance are picked out and noted because they are unusual or colourful, but again it is the presentation of the description, as much as the constituent parts themselves, that counts. For Chaucer has followed a conventional method of ordering feminine beauty, thereby underlining the effeminacy of Absolon's personality.³²

In the case of Absolon, details of physiognomy and dress and their organisation do not relate to the body of the parish clerk, his corporeality, but to his appearance. In the case of Alison, information about her character - "wynsyng", "likerous" -

conditioned and to a certain extent required a positive response to her physical presence. The occasion on which the parish clerk is described is his first mention in the story. And the description is concerned entirely with outward show, with superficialities. Absolon is, in fact, very much concerned with appearances and with the show of existence. He is a self-styled lover in the courtly manner. Dress and behaviour are of the utmost importance to him. Appearances matter to Absolon. Of course it is all a ridiculous posture. By aping courtly ideals, Absolon parodies them.

So while the portrait of Absolon might suggest the superficiality and absurdity of his attitudes, his character is generally contained in a wide variety of other information less purely visual. For example, for his tryst with Alison, the parish clerk makes sure that his appearance is just so by arraying himself at "poynt-devys", combing his hair and sweetening his mouth with herbs (MillT, I.3687-93). And the absurd side of his pretensions is illustrated when he mixes uncourtly behaviour with his would-be standards of conduct: he is a part-time barber and solicitor (MillT, I.3326-27), his courtly "solas" finds an outlet in the taverns (MillT, I.3334-36) and, grotesquely but appropriately for the dénouement he is "somdeel squaymous/Of fartyng" (MillT, I.3337-38).³³ Thus if the figure of Absolon is not so solid as that of Alison, it is because, in the latter case, the subject is well expressed by attention to her body. It would be creatively extravagant to imply a similar sort of presence with Absolon: it could convey very little of his personality. Chaucer's conception of spatial form is dictated

by the requirements of character and plot.

The portraits of Alison and Absolon are not the whole story, physically speaking. In spite of the full, rounded presentation of Alison, she is held in suspended animation as the Miller holds her up for general inspection. Immediately afterwards, she emerges from this state to become more tangibly present. Having demonstrated and stated that she is a woman a man would like to get hold of:

She was a prymerole, a piggesnye,
For any lord to leggen in his bedde ...

(MillT, I.3268-69).

Chaucer presents hende Nicholas doing exactly that. The clerk grabs Alison by the crotch and "heeld hire harde by the haunchebones" (MillT, I.3278). She springs away like a colt (the Miller has already said she is "Wynsynge ... as is a joly colt", (MillT, I.3264)), tosses her head and tells Nicholas to keep his hands to himself. "Do wey youre handes" she cries (MillT, I.3287). But Nicholas persuades her that he should become her lover and Alison then offers no resistance when he "thakked hire aboute the lendes weel" (MillT, I.3304).

The nickname of Nicholas, "hende", in the sense of ready or skilful with the hand, dextrous, itself emphasises the importance in the Miller's Tale of bodily presence and physical contact between people.³⁴ The comic climax itself, especially the misdirected kiss, is all to do with bodies and touching.

Chaucer is delightfully explicit about such matters. Alison "at the wyndow out she putte hir hole" (MillT, I.3732); Nicholas protrudes out of the shot-window "Over the buttoke, to the haunchebon" (MillT, I.3802-3); and the precise effect of the hot

coulter is noted:

And Nicholas amydde the ers he smoot,
Of gooth the skyn an hande-brede aboute ...

(MillT, I.3810-11)

The audience cannot help but envisage the actuality of the event.

Absolon's own experience is carefully realised in tactile terms. In preparation for his nocturnal meeting with Alison, the parish-clerk chews grain and liquorish "To smellen swete" and places a herb, some "trewe-love", under his tongue, "For therby wende he to ben gracious" (MillT, I.3690-93). On hearing the news of Alison's alleged solitude and vulnerability, Absolon remembers that he has observed the symptoms of a forthcoming amour:

My mouth hath icched al this longe day;
That is a signe of kissynge atte leeste.

(MillT, I.3682-83)

He has dreamed of feasting (MillT, I.3684). Absolon is anticipating a pleasure which, he imagines, will centre on his mouth. He is right about the mouth, if not the pleasure.

Absolon's infantile serenade reveals the same line of thinking: "I moorne as dooth a lamb after the tete" (MillT, I.3704) and when Alison appears to grant the lover's request, Absolon prepares for his delight by wiping his mouth (MillT, I.3730)³⁵ and then, blissfully thinking his desire fulfilled "with his mouth he kiste her naked ers/Ful savourly" (MillT, I.3734-35). He experiences a nasty, sensual shock: "He felte a thyng al rough and long yherd" (MillT, I.3738). When the truth dawns, Absolon bites his lip in anger (MillT, I.3745), and the sweetness of the herbs he carries in his mouth is a poor disinfectant. He scours his lips with anything that comes to hand:

Who rubbeth now, who froteth now his lippes
With dust, with sond, with straw, with clooth,
with chippes ...

(MillT, I.3747-48)

Delicious expectation of a smooth, yielding kiss is destroyed as Absolon experiences nothing but physical revulsion and rough textures.³⁶ The event is so traumatic that the parish clerk, in a fit of anger and revenge, drops his courtly pretences:

His hote love was coold and al yqueynt;
For fro that tyme that he hadde kist hir ers,
Of paramours he sette nat a kers;
For he was heeled of his maladie.
Ful ofte paramours he gan deffie,
And weep as dooth a child that is ybete.

(MillT, I.3754-59)

In this case, therefore, an attention to a small physical detail and to sensual experience mirrors a significant change in character, helping at the same time to prepare the audience for the nastiness of Absolon's adventure.

(ii) Movement

Chaucer's conception of his creatures as corporeally present gives them great potential for movement. Alison moves like a colt. She springs away from Nicholas "as a colt dooth in a trave" (MillT, I. 3282). The way in which Alison moves is expressive of her waywardness, her skittishness. In the same way Nicholas, because the plot requires it, carries provisions to his chamber during the carpenter's absence. But the manner in which he does it, "ful softe" (MillT, I.3410), though certainly to avoid detection by the servants, cannot help but convey the slyness of the clerk. He was "sleigh and ful privee" (MillT, I.3201). Similarly, the "ful softe" descent of Alison from the beams, and of Nicholas who "stalketh", though necessitated by circumstance, is at the same time devious,

stealthy movement (MillT, I.3648-51). Consider, as a final example, the amount of surprise and horror suggested by Absolon's involuntary movement away from Alison's arse: "Abak he stirte, and thoughte it was amys" (MillT, I.3736).

The expressiveness of movement in the Miller's Tale argues for a highly dramatic realisation of the plot. The design of the setting, too, accommodates action. For movement implies space in which to move. Whether it is Nicholas's room, the beams, the bower or the street outside, Chaucer when necessary provides a locale that the actors inhabit as they would the real world. The nature and organisation of the dramatic setting can now be discussed.

C. PLACES

(i) The Carpenter's House

By placing Alison's lover within her husband's house, Chaucer considerably enlarges the possibilities of character portrayal and of interplay between the protagonists; and it makes the theatre of action, the house, a centre of dynamic activity. At the same time, the common habitation of the three major characters presents several problems: the courting of Alison by Nicholas must take place without the knowledge of John; so must the devising of a stratagem against the carpenter; the nature of the stratagem requires that the clerk should occupy a separate and clearly defined part of the house; and the success of the deception depends on convincing John that his wife and lodger are in the roof with him to protect themselves against the flood. Without wishing to confront the intractable question of Chaucer's creative processes, it is evident that all the implications of the modified plot point in one direction: the physical nature, arrangement and location of the carpenter's house must be clearly articulated.

It helps to be told, at the beginning of the poem, that the owner of the property is a "riche gnof" who takes in lodgers. In an economical way, it is implied that the house is of considerable size (MillT, I.3187-88).³⁷ It is large enough to provide living quarters, in one form or another, for at least five people: John the carpenter, Alison his wife, Nicholas the clerk, Robin the servant and Gill the maid. The clerk lives alone in a separate room on the first floor (MillT, I.3199-220, 3434 and 3496). The bedroom or bower of the carpenter and his wife has a small

projecting window that lets on to the street outside (MillT, I. 3352-59 and 3675-95). Apparently, the room is on the ground floor. High above in the roof is the beam structure (MillT, I.3565; 3620-51; and 3816-42). From the outside, the shot-window is visible, set low on the bower wall. Nearby on the other side of the street is a smithy, manned by one Gervays (MillT, I.3760-61). At the back of the house is a gable end and below this some stables and a garden (MillT, I.3570-72).

All this sounds fairly specific. And yet to extrapolate the architecture and setting of John's house from the poem, the reader must range over the Tale from beginning to end, picking out small details as they arise. For Chaucer does not present John's house as somehow independent of the narrative. It emerges as a solid, habitable property under pressure from the plot. The nature of the house is defined, if not incidentally, then certainly as a secondary concern, when it becomes important to stress, for example, the clerk's physical separation from the carpenter's living quarters, or the height of the beams, or the relation of the shot-window to the street. Unlike the authors of the fabliaux, Chaucer is careful to feed in such detail discreetly and in advance of the actions to which they relate. But these descriptions do not combine to form a homogeneous interior which is equivalent to the actual dimensions and arrangement of John's house. Chaucer is not an architect of houses but of poetry. He only depicts literally when it suits him to do so. There is no literalism for the sake of it.

For example, when the carpenter has left his house on a trip to Oseney, Nicholas takes advantage of his landlord's absence to court Alison. Although, as I have already shown, there is a

strong physical impression of the couple's activity, the same is not true of the place where the flirting is happening. Are they in Nicholas's room, or the carpenter's bower, or in the stable? Certainly Nicholas, after winning his way, "taketh his sawtrie,/ And pleyeth faste" (MillT, I.3305-6), and the psaltery is kept on a wall in the clerk's room (MillT, I.3213). But it is not clear whether Alison is with him to hear the music. Nicholas may have left her in the bower or the hay and gone back to his room alone. Actually it does not matter where they are. All that is important is that John the carpenter is not in the house. And that effect has been achieved by a straightforward statement (MillT, I.3271-74). There is no further need to specify the exact location of the scene.

In a recent book, J.A.W. Bennett has seen fit to ignore the creative limitations of literalism in the Miller's Tale.³⁸ He has extracted all the architectural information from the poem and then combined it with contemporary records of Oxford life, students' living accommodation and carpenters' houses to produce what purports to be a drawing of John's establishment (Fig.3). The danger of such an attempt to read Chaucer as an historical record is that the apparent objectivity of the enquiry becomes more important than the poem and, as in Bennett's case, actually misleading when applied to the work in question. It does not elucidate but clutters and obstructs Chaucer's meaning.

Since John has household servants, Bennett is obliged to give them rooms, rooms of which there is no mention in the Miller's Tale. Nor does Chaucer refer to the carpenter's shop, a hall or a cellar, all of which are included in Bennett's drawing. When it

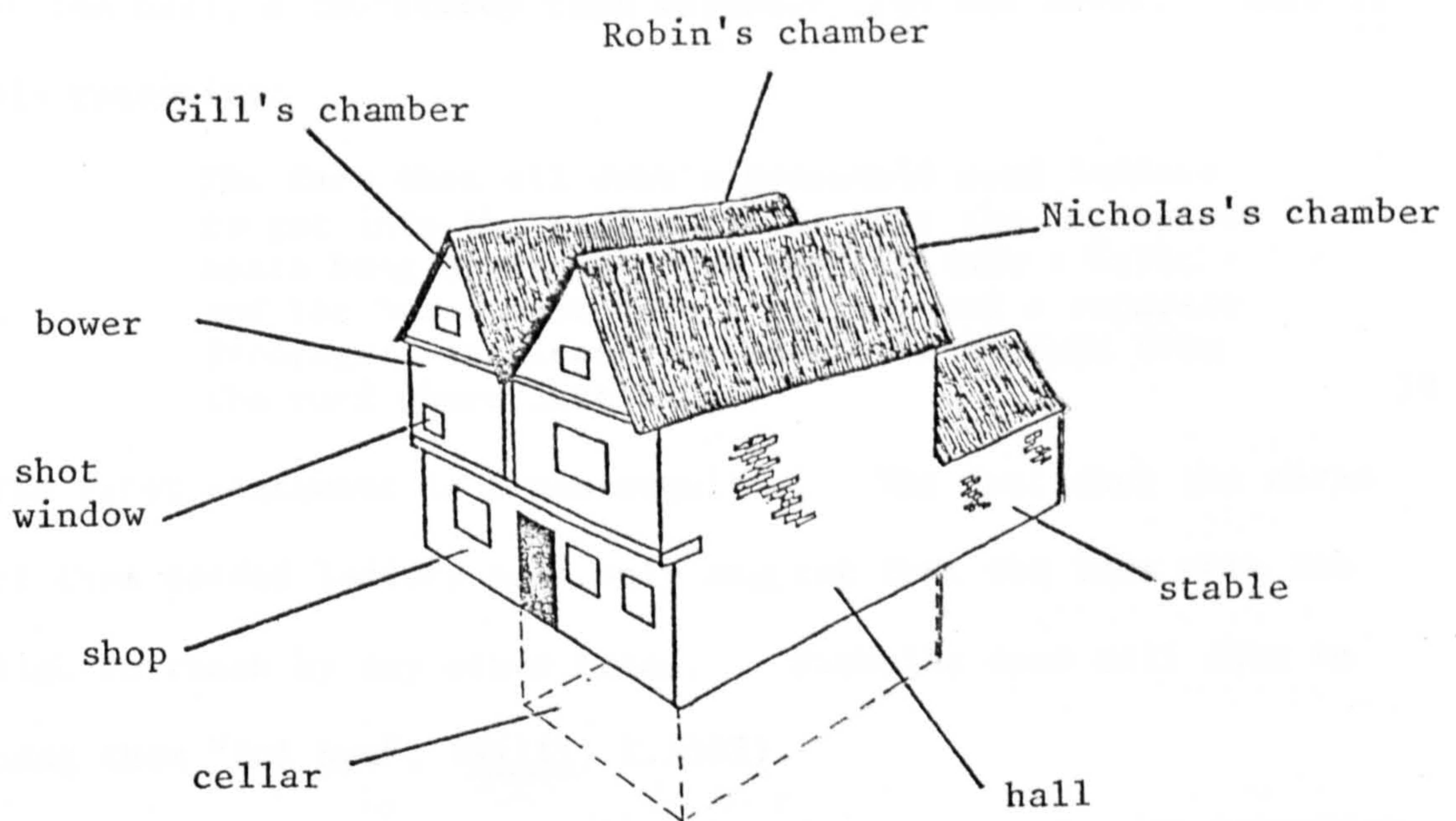


Figure 3: "The Carpenter's House", from Bennett, Chaucer at Oxford, p.28, fig.2b.

comes to reproducing what is detailed in the Tale, Bennett's interpretation is unnecessarily elaborate. When John, Alison and Nicholas climb into the beams, for example, the reader is not told what part of the house it is. He probably assumes the simplest explanation: they are above the bower of Alison and John. Bennett, because he is committed to a hypothetical reconstruction of all of the carpenter's house, puts the beams in the hall, a two-storey room separate from the bower. This is his reasoning:

The fact that all John's household need ladders to get into the roof suggests that the improvised boats hang above the open roof of such a hall; and the bower must have a ceiling and a separate frontage: it clearly could not be visible from the roof where John hangs.

39

The first statement is a non-sequitur. The fact that the three of them needed ladders need only suggest that the tubs were too high to reach by any other means. Nicholas does tell John to hang them "ful hye", (MillT, I.3565).

The second statement, which I take to mean 'it was important that John should not be able to see Nicholas and Alison copulating, therefore he must be in a separate room' pays scant attention to the text. John will not see the lovers, even if he is in the same room, because he is exhausted after a day's strenuous activity: he is dead to the world, although lying uncomfortably in his tub.

The dede sleep, for wery bisynesse,
Fil on this carpenter right, as I gesse,
Aboute corfew-tyme, or litel moore;
For travaille of his goost he groneth soore,
And eft he routeth, for his heed myslay.

(MillT, I.3643-48)

John must be relatively near to the lovers if he is to be roused

by the clerk's cry for water. And the analogues bear out this more simple and sufficient explanation. In the contemporary Flemish version, as well as in two examples from the sixteenth century, the first lover or husband is in his barrel, the wife and lover in bed, all in the same room.⁴⁰ Bennett's schema, then, in one sense, is actually unhistorical because it does not take account of the received literary tradition. It is unnecessarily complicated, distracting, and implies a form of comprehensive literalism that Chaucer never intended and which the text itself refutes.

Bennett commits a more blatant error in his siting of the shot-window. Again, he is led by false priorities to include the carpenter's shop, an unChaucerian detail, on the ground floor. He has assumed, on what basis it is not stated, that the bedroom of John and Alison, habitually referred to as a bower, is a first-floor room.⁴¹ This is placed directly above the shop. But the siting leads to a problem concerning the infamous shot-window:

... the bower (the married pair's bedroom) where he /Nicholas/ and Alison disport themselves, has a shot-window on to the street, but it must be very low down for Absolon to be able to knock on it, and for the kissing to take place: 'Unto his breste it raughte, it was so low' (3696); yet it is high enough for him to have room to swing the coulter (3810). So the bower may have been over a low-ceilinged shop ...

42

The last sentence is not just speculation. It is contradicted by the Tale, where it is irrelevant to assume that the bower was anything but a ground-floor room. This is quite clear from the references to the shot-window, only two of which Bennett mentions. It is emphasised that the window "stant ful lowe upon his boures

wal" (MillT, I.3677) and, as Bennett mentions but conveniently ignores, it reaches only to Absolon's chest. That this might prevent him from swinging the hot coulter is quite beside the point. There is no mention of 'swinging' it in the text, where the action is described more generally: Absolon "smoot" Nicholas (MillT, I.3810). In any case a coulter, an iron blade from a plough,⁴³ hardly lends itself to being flourished like a poker.

When Chaucer says the window is only chest height, he means it. Under the pretence of amplifying Chaucer's literalism, Bennett ignores it. The crucial line describes how Absolon addressed himself to the task of kissing Alison. It removes the faintest possibility of there being a ground-floor shop below the bower, thus effectively bringing Bennett's fictitious house tumbling down. In order to kiss Alison, Absolon must kneel on the ground: "This Absolon doun sette him on his knees" (MillT, I.3723). The window is now on a level with the parish clerk's head, Alison is projecting from the bower window, and Absolon can fulfil his love longing.

The preceding remarks reveal the extent to which Bennett, in an over enthusiastic pursuit of his subject, has neglected the poem itself. A closer concern for what Chaucer says might have prompted the interesting question of the poet's consistency or ambiguity in relation to reality. It is quite possible, for example, that although medieval carpenters' houses had all the details Bennett ascribes to them, Chaucer found it convenient to neglect such matters in the interests of his plot. The plot moulds the organisation of space as well as dictating its necessity.

On a more positive note, Bennett does draw attention to the need for a certain sensitivity in reconstructing the imaginative habits of a medieval audience. It would be au fait with the interiors of carpenters' dwellings in a way that the modern reader is not. It would react with greater readiness to such architectural stimuli as are present in the Miller's Tale. But medieval houses, with their beams and bowers and chambers and windows, are still with us and it is possible for the reader to educate his eye so that the mind's eye responds appropriately to literary descriptions. This does not mean the wholesale reconstruction of buildings of which only certain aspects are articulated; it does mean a careful appraisal of what is given by the poet.

(ii) Nicholas's Room

The room of Nicholas is given an extraordinary amount of attention in the opening passages of the Miller's Tale. It is the first detail of the interior of John's house to be mentioned. The reader is led straight to the clerk's chamber as if it is an important place. The focus has been on Nicholas from the start. The carpenter and his house have been passed over in the first few lines and there, suddenly, is the student. This "poure scoler,/ Hadde lerned art" (MillT, I.3190-1); that is, he had graduated from the faculty of arts at Oxford and was now able to pursue more advanced studies. Astrology is his passion, his "fantasye" (MillT, I.3191), and by the sound of it he has a certain renown in his field. He is well versed in the methodology of predictions. He is consulted for weather forecasts and generally looked to for

predictions of what will happen in the future (MillT, I.3192-98). To this extent, Nicholas is in control of events and can exercise a considerable power over the behaviour of others.

But there is another, less earnest side to his character. He has learned another kind of art, the art of love, which he pursues with the appropriate discretion and secrecy:

Of deerne love he koude and of solas;
And therto he was sleigh and ful privee.

(MillT, I.3200-1)

It is a more complex, more sophisticated personality by comparison with the straightforward pretensions of Alison and Absolon. By contrast with them, the character of Nicholas is not significantly revealed in his physical appearance. He is "lyk a mayden meke for to see" (MillT, I.3202) and that is all. His mien hides rather than discloses his personality which Chaucer conveys, in the first instance, by blunt statement.

Chaucer's revised plot requires that Nicholas should occupy a separate room in which he can lock himself to arouse the carpenter's suspicion that something is seriously wrong.⁴⁴ The identity of the room must therefore be established, and this is done in the opening description. It is not just a gratuitous presentation of a student's room, however. It expresses Nicholas's character as well as serving the needs of the plot. There is an interplay between the visual detail and the personality of the clerk on a relatively large scale that reveals a striking economy of creative effort. The poetry signals the relationship from the start. The room is hung with sweet-smelling herbs and Nicholas himself is "as sweete as is the roote/Of lycorys, or any cetewale" (MillT, I.3206-7).⁴⁵ On shelves at the bed's head is,

among other books, Ptolemy's great astrological work, the Almagest, an astrolabe, an instrument used for measuring the altitude of the stars,⁴⁶ and "augrym stones" or counting stones for mathematical calculations (MillT, I.3208-11). Here then is evidence of the clerk's intellectual interests. Elsewhere there is a press for books, covered with a cloth (MillT, I.3212). Other objects betray more light-hearted preoccupations. Above the books is a psaltery on which Nicholas plays tunes at night, both religious⁴⁷ and secular⁴⁸ (MillT, I.3213-18).

Inevitably, the mention of the bed, Nicholas's belongings and their size and position, books "grete and smal", counting stones "layen faire apart", press "ycovered with" a cloth, a psaltery "al above", suggest a continuum of space which is the chamber. The clerk's songs, too, help to define the interior of the room. Nicholas is continually making music, so that "all the chambre rong" (MillT, I.3215). Bennett takes this to mean that the room was large, but his reasoning is obscure.⁴⁹ What it does mean is that the clerk's presence, through the sound of his music, filled out in all directions the confines of the chamber. And as the Tale progresses, the impression of a three-dimensional, enclosed room becomes even stronger.

It is already known that the clerk's chamber is set apart from the rest of the house. Nicholas inhabits it "Allone, withouten any compaignye" (MillT, I.3204). It is a specific place and, unlike anywhere else in the house, has to be deliberately entered. Nicholas carries meat and drink "unto his chambre" (MillT, I.3410). Access is by some stairs; it requires an effort to go and see the student in his room. Robin, the servant, is

told to "Go up" (MillT, I.3431) to Nicholas to rouse him and then he goes "Adoun" to report (MillT, I.3446). The chamber door is a clear mark of division between the clerk's room and the rest of the house. It is a tangible, wooden object.⁵⁰ John tells his servant to knock at it with a stone, to make sufficient noise to wake Nicholas (MillT, I.3432-33). Robin does this, and cries as if he were mad (MillT, I.3434-38). There is no reply. Robin stands, listening, on one side of the door. No sound comes from within. Low down on the door is a hole, "ful lowe upon a bord,/ There as the cat was wont in for to crepe" (MillT, I.3440-41). Robin takes advantage of it: "And at that hole he looked in ful depe" (MillT, I.3442). He is looking into the space of the room. There, at last, the servant sees Nicholas "capyng upright,/As he had kiked on the newe moone" (MillT, I.3444-45). This is a remarkably exact piece of optical description. The depth of the room is accentuated by the relative nearness of the door as Robin peers through the hole to see Nicholas framed, as it were, by the opening in the wood.⁵¹

To rescue Nicholas from his fate, John and Robin address themselves to the door. "Get me a staf," says the carpenter, "that I may underspore" (MillT, I.3465) - lever it - "Whil that thou, Robyn, hevest up the dore" (MillT, I.3466). Robin, for the first and only time, conveniently materialises as a strong armed individual, like the Miller a "strong carl for the nones" (MillT, I.3469) and applies himself to the task. The door is down in a trice: "by the haspe he haaf it of atones;/Into the floor the dore fil anon" (MillT, I.3470-71). The scene is open to view. Nicholas sits, still as a stone, staring into

emptiness (MillT, I.3472-73). John crosses over to the clerk, grabs him by the shoulders, and shakes him hard (MillT, I.3474-76). Movement is now sustaining the sense of space within the room. John fears the worst - that elves and wights are responsible - and repeats a night spell towards the four corners of the house and its entrance (MillT, I.3477-86). Nicholas revives a little, and asks for drink, hinting for Robin's sake that he must speak alone with John (MillT, I.3487-95). The carpenter "goth doun" and returns with a quart of ale. After they have drunk, Nicholas shuts fast the door and he and John sit down together (MillT, I.3496-500). Nicholas has lured his victim to his lair and there is no further mention of the student's chamber.

In this case, a developing articulation of the third dimension, as it inheres in the clerk's room, is synchronised with a dramatic climax in the plot. Insofar as the chamber is an instrument whereby Nicholas dupes the carpenter, it is worthy of mention; when it has served its turn, it ceases to exist. But space, in the present example, is more than a vehicle of dramatic expression. It subtly reinforces the relationship of Nicholas to the rest of the household. Absolon is all surface; Alison at least has a body; but Nicholas has an entire self-contained and self-containing room in which his personality finds expression. The impression of greater dimensions in the immediate surroundings of Nicholas parallels his greater wit and culture and self-awareness.⁵² Where Absolon fails as a lover, Nicholas succeeds; where John is inadequate as a husband, Nicholas replaces him; where Alison is reluctant, Nicholas presses on confidently. The clerk, like his room, is in a separate class. And it is appropriate, not just expedient, that John should be beguiled in the very territory which

enunciates Nicholas's superiority so well. Once John has wilfully entered the student's chamber, he is lost, and Nicholas, like a true astrologer, can extend his influence over the entire house, even over the bower of John and Alison, if not over the street outside.

(iii) The Bower

The bedroom of John and Alison is never described in the same detail as Nicholas's chamber, although the repeated use of the word "bower" helps to give the room a separate identity.⁵³ It is chiefly a set for the enactment of farce and although there are pockets of three-dimensional space, these are not integrated to give the impression of a homogeneous interior. The shot-window is the first feature of the rooms to be mentioned, insofar as it connects with the outside world, allowing Absolon access to Alison (MillT, I.3358-59).⁵⁴ The window can be opened and shut and it is wide enough to allow Alison and Nicholas to sit in it (MillT, I.3727-41 and 3801-3). The relation of the window to other parts of the room is not specified, but it is evidently on an outside wall that faces the street. Within the bower, the only regular item of furniture that is mentioned is the bed (MillT, I.3650-51), the presence of which is only implied initially (MillT, I.3364-65). There is movement between the bed and the window, but it is not described, although Nicholas is on the way somewhere else - "This Nicholas was risen for to pisse" (MillT, I.3798) - when Absolon makes his second call.

If the simple and sufficient explanation is accepted - that the bed and troughs are in the same room - then other details can be added. There are three ladders reaching from the floor

to each of three kimelins in the beams. The ladders are placed at intervals since the troughs are some distance apart, and the ladders are objectively real. The carpenter had made them with "His owene hand" (MillT, I.3624), and the technical components - rungs and stalks (upright pieces) - are named, appropriately enough in a Tale about a carpenter. The troughs themselves are given a similar sort of descriptive attention. They are referred to as kneading troughs, kimelins and tubs.⁵⁵ The important thing is that they should be able to contain a human being, as in a small boat, together with provisions for a day and, in John's case, an axe (MillT, I.3568-69 and 3627-28). John's trough in particular is individualised as a containing object in which he can sit (MillT, I.3819) and sleep, if uncomfortably (MillT, I.3647). The troughs are hung in the roof by rope, which John is to smite in two with his axe when the flood alert is given (MillT, I.3565, 3569 and 3820).

The beam structure is also distinguished by a precise descriptive word: baulks.⁵⁶ It is among these that John hangs the troughs (MillT, I.3626). When the water reaches this level, the carpenter is to break a hole through the gable end (MillT, I.3571). The tubs are isolated from each other - "fer atwynne" (MillT, I.3589) - far enough apart, insist Nicholas, so that John will not be tempted by the sight of Alison.⁵⁷ When the carpenter wakes to the cry of "Water!", he sits up in the tub, cuts the securing rope in two with the axe and crashes to the floor; provisions and all:

And doun gooth al; he foond neither to selle,
 Ne breed ne ale, til he cam to the celle
 Upon the floor, and ther aswowne he lay
 (MillT, I.3821-23)⁵⁸

There is a strong impression of impact as the luckless John crashes to the floor. The fall is enough to make him unconscious, and there is also a sense of abrupt finality in the use of "celle" or sill to denote the hard, solid ground beneath the beams.⁵⁹

But the effect is also achieved by previous references to the height of the beams. Ladders are necessary to reach the troughs; and John is instructed to "hange hem in the roof ful hye,/That no man of oure purveiaunce spye" (MillT, I.3565-66). It is no wonder that the carpenter breaks an arm (MillT, I.3829).

The height of the tubs, their separation, the means of access, are all details dictated by Chaucer's scheme of action. He diverges from the analogues by having Nicholas and Alison sit in the beams with John. By showing their encouragement of the carpenter's fears and fancies, this part of the Tale is made more convincing. The change requires some attention to space, especially in the separation of John from the lovers so that they can creep to bed unseen. Although in this episode space is restricted, local and non-expressive, the fact remains that Chaucer was able to evoke the third dimension when need arose. Space and narrative therefore exist in symbiosis: the poet's technical ability to suggest the third dimension allows for changes in the plot, while those very changes shape and determine the nature and extent of the spatial content.⁶⁰

(iv) The Neighbourhood and the Town of Oxford

The interior and exterior of John's house has been considered as a function of certain creative priorities. Chaucer also uses another descriptive procedure which, although largely non-

spatial, reinforces the presence of the carpenter's dwelling place as a physical entity. To a certain extent, the existence of Oxford supports the existence of the house and its inhabitants. And in the closing scene of the Miller's Tale the inter-dependent vitality of both worlds comes together. Place and space combine.

There is an almost concentric sense of place in the Miller's Tale. At the hub is the house of John; then the immediate environs: his garden and stables, the street with the smithy. This is contained in a less clearly defined area of the parish and its church. In the still wider area of the town are other ecclesiastical institutions: bells ring out at Lauds and the friars sing in the chancel (MillT, I.3655-66). Then of course there is the university, also within the city, existing side by side with more frivolous occupations. There is music, dancing, drinking in the taverns (MillT, I.3328-33), and mystery plays staged on scaffolds (MillT, I.3384).⁶¹ Beyond the city is Oseney and its abbey (MillT, I.3274 and 3400).⁶²

Oxford is presented as a multi-faceted society and the figures of the story by their activities unite the various places and institutions in a complex pattern that is the town. John the wealthy carpenter is frequently found away from home at Oseney, where he sometimes stays in the grange (MillT, I.3665-68), in the employment of the abbot. Nicholas by his studies and predictions and place of lodging embodies a relationship between town and gown. Absolon is the parish clerk. It is at the church that Alison likes to be admired and it is there, one holiday, that Absolon falls in love with the pretty wife (MillT, I.3307-51). And Absolon ranges far and wide in his search for pleasure: to John's house, to the mystery plays in which he acts (MillT, I.

3383-84), to the taverns and to Oseney abbey (MillT, I.3334-35 and 3657-60). Thus the mesh of social rôles and institutions evokes Oxford as a living community.

During the dénouement of the Miller's Tale, this external world penetrates the internal, enclosed world of John's house. The carpenter's house on the night of the deception is shut up and dark: "He shette his dore withoute candel-lyght" (MillT, I.3634); and it is a particularly black night: "Derk was the nyght as pich, or as the cole" (MillT, I.3731), a fact that lends credence to the misdirected kiss. Once John has fallen from the beams and Alison and Nicholas have raised the alarm in the street, neighbours of all social standing, "bothe smale and grete" (MillT, I.3826) invade the house, laugh at John and inspect the tubs in disbelief: "Into the roof they kiken and they cape" (MillT, I.3841).⁶³

Now it is John's jealousy and possessiveness that is ultimately being ridiculed:

Thus swyved was this carpenteris wyf,
For al his keypyng and his jalousye
(MillT, I.3850-51)

There is a hint, therefore, that the enclosing dark interior of the house, over which John thinks he has such control, is expressive of his attitude to Alison. And when, finally, the neighbours break in, it has the effect of putting John's possessiveness into perspective: the fantasy of private ownership of a person is placed within a larger social context in which it is seen as ridiculous: "he was holde wood in al the toun" (MillT, I.3846). The narrow, domestic world of the carpenter is invaded, quite literally, and opened out.

D. LARGER DIMENSIONS: SPACE AND THEME

These last tentative observations exemplify the extreme difficulty of proceeding with a correlation of spatial and thematic content. Ideas of space in Chaucer's poetry oscillate between physical fact and metaphor and it is a delicate operation to distinguish the two poles and their relation to each other. In general, I have attempted first to describe the nature of physical space, and then to suggest how it might function as an expressive image of the larger concerns of the Miller's Tale. This form of interpretation moves away from concrete reality to thematic intention. But a reverse process also operates. There are three instances in which an image containing a spatial idea disconnected from the physical world of the Miller's Tale expresses a theme in metaphoric cast and then, by extension, relates directly to the substance of the narrative.

(i) Caged Birds

The first image encapsulates the possessiveness of John. The Miller says that the carpenter holds Alison "narwe in cage" (MillT, I.3224). Some of the epithets used of his wife are, appropriately, animalesque. Alison is "wylde" (MillT, I.3225), sinuous like a weasel (MillT, I.3234), she can skip like a kid or calf (MillT, I.3260) and moves impulsively, like a colt (MillT, I.3263). She dislikes being trapped and contained: "she sprong as a colt dooth in the trave" (MillT, I.3282).⁶⁴ Elsewhere, she is likened to birds: to a swallow (MillT, I.3258), and "turtel trewe" (MillT, I.3706). Alison is caged or restricted by the old carpenter,⁶⁵ and the metaphor is extended:

if Alison is the wild young bird, fretting to be free of her cage, John is afraid that a cuckoo might usurp his place: "and he was old,/And demed hymself been lik a cokewold" (MillT, I.3225-26). In terms of the Tale, the comparisons pass comment both on the waywardness of Alison and on the restricted, introverted quality of John's domestic arrangements. The narrow, contained space of the hypothetical cage epitomises the effect of John's brooding over his young wife. But the cage image finds an echo in a containing quality of something that is actually present in the Tale: John's house. It is there, within the four walls of her real cage, that Alison experiences John's control over her life:

Myn housbonde is so ful of jalousie
That but ye wayte wel and been privee,
I woot right wel I nam but deed ...

(MillT, I.3294-6)

Although Nicholas usurps John's control, it is only when the house cage is opened up to the outside world that John is cured of his jealousy.

(ii) Fantasies

The second image is to do with mental preoccupation. John's jealousy is quite fanatical. Because of it, he is susceptible to the clerk's prophecy of doom:

Lo, which a greet thyng is affecioun!
Men may dyen of ymaginacioun,
So depe may impressioun be take.
This sely carpenter bigynneth quake;
Hym thynketh verraily that he may see
Noes flood come walwyng as the see
To drenchen Alisoun, his hony deere.

(MillT, I.3611-17)

John and his "fantasye" (MillT, I.3840) eventually become a public laughing stock, and to that extent his social and domestic

standing has changed radically by the end of the poem.

John is not the only victim of fantasy. Absolon's whole mode of conduct is based on a pseudo-courtly creed of narcissism and effeminacy. He only gets rid of his craze after a nasty shock and the alteration in his outlook is pronounced if sudden. His pretensions have led him into a grotesque situation and he quickly abandons them:

For fro that tyme that he hadde kist her ers,
Of paramours he sette nat a kers ...

(MillT, I.3755-56)

Nicholas too has a pet obsession: "al his fantasye/Was turned for to lerne astrologye" (MillT, I.3191-92). But the difference in the clerk's case, and a mark of his intelligence, is that he is aware of it and can turn it to his own advantage. So much so, that in the end he is too clever for his own good and overplays the tricking of Absolon.

The fact that John, Absolon and Nicholas each undergo physical pain at the end of the Tale seems to suggest that they are in some way receiving punishment or reprimand for their self-conceit, whatever form it takes. The closing lines are emphatic on this point. Everyone gets their just deserts but Alison who, though just as culpable as the others, is not a victim of fantasy. She is, in every sense, a realist:

Thus swyved was this carpenteris wyf,
For al his kepyng and his jalousye;
And Absolon hath kist hir nether ye;
And Nicholas is scalded in the towte.

(MillT, I.3850-53)

It is the carpenter, ironically, who draws attention to the dangers of self-absorption. Commenting on the clerk's moonstruck appearance, he says:

So ferde another clerk with astromye;
He walked in the feeldes, for to pry
Upon the sterres, what ther sholde bifalle,
Til he was in a marle-pit yfalle;
He saugh nat that.

(MillT, I.3457-61)

Of course it is John who does the falling, from the heights of the beams and from the heights of his own jealous possessiveness.

So the image he sets out, which incorporates movement, looking and falling as spatially suggestive elements, forewarns the audience of both a literal fall and the figurative falls of John, Absolon and Nicholas.

(iii) Near and Far

The third image takes the form of a proverb: "Alwey the nye slye/ Maketh the ferre leeve to be looth" (MillT, I.3392-93). The Miller is referring to the unsuccessful attempts of Absolon to win the heart of Alison. He cannot succeed while Nicholas is in the household:

For though that Absolon be wood or wrooth,
By cause that he fer was from hire sight,
This nye Nicholas stood in his light.

(MillT, I.3394-96)

A proverb of general application here finds a particular appropriateness. Absolon is emotionally distant from Alison, but he is also physically distant in terms of the story because hende Nicholas - hende here meaning 'near, at hand' - has direct access to the carpenter's wife through being a lodger in the same house. So the image relates directly to the physical arrangement of the characters in the Tale. And its references to light link it with Alison in another way. The light that Nicholas stands in is the light from the carpenter's wife. The opening

description of her includes the statement:

Ful brighter was the shynyng of hir hewe
Than in the Tour the noble yforged newe.

(MillT, I.3255-56)

And when Alison goes to church "Hir forheed shoon as bright as
any day" (MillT, I.3310).

The primary intention of the foregoing images is thematic. They highlight particular aspects of the Miller's Tale from different angles. But they lead logically to the physical world of the Tale. They are not isolated, self-contained images, but echo spatial features of the plot itself. The caged bird or animal is analogous to Alison within the walls of John's house; the philosopher's fall into the pit mirrors John's fall from the beam; and the obstruction of Absolon's intentions by Nicholas finds a visual correlate in the clerk's nearness to Alison. The movement of the images from thematic concerns to the realistic space of the narrative balances the more pervasive movement from physical space to metaphoric interpretation. The processes are mutually supporting: they are both integrated within the same fiction. That the three thematic images should be spatial in conception, incorporating sight, movement and enclosure, is perhaps an indication of the significance of the third dimension in the Miller's Tale.

In conclusion I should like to consider one further occurrence of fictional space that has no physical existence within the narrative. It is the space invented by Nicholas when he persuades the carpenter of the forthcoming flood. The clerk paints a vivid picture of the salvation of John, Alison and himself:

And whan thou thus hast doon, as I have seyde,
And hast oure vitaille faire in hem ylayd,
And eek an ax, to smyte the cord atwo,
When that the water comth, that we may go,
And breke an hole an heigh, upon the gable,
Unto the gardyn-ward, over the stable,
That we may frely passen forth oure way,
Whan that the grete shour is goon away,
Thanne shaltou swymme as myrie, I undertake,
As dooth the white doke after hir drake.
Than wol I clepe, 'How, Alison! how, John!
Be myrie, for the flood wol passe anon.'
And thou wolt seyn, 'Heyl, maister Nicholay!
Good morwe, I se thee wel, for it is day.'

(MillT, I.3567-80)

It is a portrayal of something that is not actually present, although it is based on assumptions about the architecture of John's house. But the carpenter finds this vision of the imminent future entirely convincing and begins to prepare for an imaginary disaster:

Hym thynketh verrailly that he may see
Noees flood come walwyng as the see
To drenchen Alisoun, his hony deere.

(MillT, I.3615-17)

John is, of course, preoccupied with his wife, superstitious, literally minded and 'sely'. But his reaction to the clerk's convenient fiction epitomises the reaction of the audience to the physical world of the Miller's Tale. The audience exists in a real world, just as the carpenter exists in his house, and yet it is made to abdicate the present in order that a convincing fictional world should come into existence. At the same time, there is a mute correspondence between the space of the physical world and the space of the Tale. One imitates the other. It is in the borderland between reality and fiction that the illusory third dimension belongs and exists in its most persuasive guise. Nicholas knows this, and so does Chaucer.

CHAPTER 8:

THE 'CANTERBURY TALES', FRAGMENT I - THE 'REEVE'S TALE'

A. INTRODUCTION

(i) Procedure

The present chapter will follow much the same method of analysis as that used with the Miller's Tale. Working gradually from the smaller to the larger components of the Reeve's Tale, I shall attempt to show how Chaucer creates a sense of space and to demonstrate the uses to which he puts it. A preliminary account of the nearest analogue to the Reeve's Tale will be followed by an examination of Chaucer's attention to concrete detail. This will lead to a discussion of individual portrayal, and to a consideration of movement. The bedchamber, as the most important locus of action, will then be given its due attention, as will the topography of the Tale. A certain emphasis will be placed on the presence of acts of vision in the Reeve's Tale as having importance both in terms of its action and its themes. Finally, the link between the physical and metaphorical dimensions of the Tale will be further explored in an examination of Chaucer's use of space.

(ii) 'Le Meunier et les .II. clers'

Nothing provides a better impression of Chaucer's conception of the physical world in the Reeve's Tale than a comparison with the French fabliau which comes closest to providing a probable source.¹ Le Meunier et les .II. clers contains all the essential parts of the plot, in a purely mechanical sense, which mesh with such precision in Chaucer's Tale.² Muscatine has drawn attention to the representational and naturalistic advance that is one of the most striking achievements of the Reeve's Tale.³ This is a quality which contrasts with the unspecific nature of the French story,

from which precise locale, character names and portrayal, social setting, psychological interplay and thematic unity are all lacking, though not entirely from the fabliau genre as such.⁴ The author of Le Meunier is concerned to present a straightforward idea, the bettering of a thieving miller, in the simplest manner possible. Here is a black and white story, with sympathy firmly on the side of those who are poor and victimised.⁵

In Le Meunier, there are very few objects to which any attention is paid, and each of these has a strictly narrative function. The sack and horse which the clerks take to the mill is the subject of some toing and froing between them and the miller (Meun., A.61-62, 94-96 and 106), but there is nothing so subtle as stealing the mare to create a diversion while some of the corn is removed. Animal and property are stolen outright and then returned at the end of the tale (Meun., A.313-14).⁶ The animal has no name or distinctive quality: its equine nature is never realised as is Bayard's in his flight to the fen. The bin in which the miller's daughter is locked is an important but obtrusive object (Meun., A.161-67, 201-2 and 218-20); it is a clumsy device for contriving the possessiveness of the miller and is all the fabliau has to offer in comparison with the elaborate family background of Chaucer's Tale. The andiron and its ring, by means of which entry is effected into the bin, is again a somewhat far fetched contrivance, blatantly introduced into the narrative (Meun., A.176-81), and depending for its success on the extreme naïveté of the girl (Meun., A.208-17).

The miller's daughter is the only individual who is accorded any physical description. She is pretty and agreeable so that

the clerk can be attracted by her (Meun., A.161). But no one has the dignity of a name, least of all a recognisable appearance and presence. The participants have functions that are purely external, mechanical, ordered by the relentless progress of the action. The narrative takes such precedence that even the slight indications of character are not upheld. Thus the deacons, represented as poor, pious and pathetic at the beginning (Meun., A. 1-18) soon degenerate into randy opportunists (Meun., A.274-85). The miller's wife, who turns against her husband after conniving with him throughout the tale (Meun., A.308-15) is another case of disregard for character.

The important physical relationship of the beds in the final scene, which is so necessary to a full appreciation of the farce, is entirely neglected. Thus the presence of the cot and its position (Meun., A.238-41) comes as a complete surprise. The scene itself peters out in an unconvincing quick victory over the miller by one of the clerks (Meun., A.299-300) and a final outburst of brutality at the end just for good measure (Meun., A. 316-18). There is no sense, as in Chaucer, of bodies moving, banging and brawling inside a confining interior. The presence of the bin makes the secrecy of the clerk's seduction so much easier and the complications of relative position, of having more than two people involved in the fight, and of darkness, are avoided. The only occasion on which physical relationships receive some passing mention is during the meal, when one clerk eats with the daughter. This is by way of a preparation for their imminent coupling. It must be at this point that the clerk conceives a desire for the girl, since he removes the andiron ring from the fireplace. But, typically, all mention

of such interior, psychological development, though basic enough, is omitted.

The interior of the miller's house is, like Chaucer's restricted (Meun., A.154-55), and this fact requires that the clerks should share his family's chamber. There is the fireplace (Meun., A.176) and that is all that is mentioned. There is no exploitation, as there is in the Reeve's Tale, of the space of the chamber or mill; no mention of the mill's machinery. The external architecture, however, is presented in greater detail. House and mill are separate (Meun., A.55-60), a fact that Chaucer neglects,⁷ but which allows the miller of the fabliau to hide the grain and horse in the house (Meun., A.94-96), though they later change location mysteriously and appear in the barn (Meun., A.315). There is evidently an enclosed patch of land in front of the mill, with access by a gate (Meun., A.61-62), and a meadow next to the millstream in which the mare is put (Meun., A.63-64). But in spite of this relatively detailed information, the mill and the house still fail to impress the reader as anything but nondescript. There is nothing like Chaucer's "levesel" (RT, I. 4061) to make it distinctive.

The anonymity of place, like that of character, is compounded by a neglect of particularised topography and geography. The clerks are from the same town and country, but it is not named (Meun., A.1-2).⁸ They live in a forest (Meun., A.4) just as the miller lives by a small wood (Meun., A.56) in which the clerks twice find themselves wandering (Meun., A.77-81, 91 and 128-30). The differentiation is there, but only in name. There is nothing that brings the forest and wood, or the clerks'

experience of them, to life.⁹ Trees are trees are trees. The deacons discuss their problem after church one Sunday, going out of town to do so (Meun., A.19-23). The mill they plan to visit is two leagues distant (Meun., A.53-54), its isolation being stressed to indicate the clerks' vulnerability (Meun., A.57-60).

One of the consequences of this virtual lack of space in Le Meunier is a corresponding lack of narrative unity. There is no well developed physical context in which the action can take place. This is most apparent in the linking of episodes. After the clerks return from the wood to seek shelter, the miller is depicted as unprepared for their arrival (Meun., A.140). This contrasts with Symkyn's half-expectant welcome in the Reeve's Tale. Similarly, it seems odd after the first drubbing of the miller that he should be allowed to light a fire (Meun., A.301-2). He presumably does this in order to illuminate the scene, but there has been no previous mention of darkness. Such inconsequential activity is a symptom of the lack of spatial homogeneity.

When Chaucer introduces the third dimension into the Reeve's Tale, he introduces at the same time the elements the lack of which has just been noted in the French source: individuality, specific place, unique occasion, attention to revealing detail, objects with a variety of narrative and thematic functions, and social background. So space takes on an associative function. As well as being suggested by a described physical world, it also has evocative powers, and epitomises the difference between the generalised world of the fabliau and the uniqueness of the Reeve's Tale. Its operation in Chaucer's Tale, in both a material and thematic sense, can now be examined in detail.

B. PEOPLE AND THINGS

(i) Symkyn's Head

It requires a certain suspension of belief to accept the dénouement of the Reeve's Tale. The farcical point at which the wife strikes her husband over the head, mistaking him for Aleyn, may seem far fetched. Yet Chaucer does make a scrupulous attempt to relate the misapprehension to some persuasive explanations.¹⁰ The miller and Aleyn are fighting close together, visibility is bad and the miller's wife has only just woken in a state of confusion (RT, I.4273-79, 4297-98 and 4285-91). But plausibility is undermined by the sudden, unexpected mention of the clerk's "volupeer" or night-cap (RT, I.4303) which does not feature elsewhere in the story, and which the clerk would be unlikely to wear since he had come unprepared to spend a night at the miller's house. Its introduction is a patent device to explain the crucial visual error. But if Chaucer has failed to make adequate preparations for the appearance of the voluper, the same is not true of the thing that does receive the blow - Symkyn's head. Great care has been taken to thread into the story a number of references so that the miller's bald, shiny white pate, appearing at the end only to be beaten, is a convincing target for the wife's staff.¹¹

The incident marks an alteration in the plot. The fabliau has the miller, incredibly, overcome by a single clerk without any trouble.¹² Chaucer, more convincingly, makes Symkyn the strong miller more than a match for Aleyn and it eventually requires both of the clerks, as well as the inadvertent blow, to defeat him (RT, I.4307-8). In fact, were it not for his wife's

intervention, the issue would be in doubt. It is therefore important to the credibility of her misapprehension that the target of the decisive act should not be introduced casually when required, but carefully and subtly at an earlier point in the Tale.¹³ The sort of meticulous attention to detail which such a revision requires incidentally illuminates the disparity between the Reeve's Tale and its source, which is quite incapable of conceiving a sustained preparatory narrative 'plant' of this nature.

To consider Symkyn's appearance and character, as some critics have done, as in part moulded on the Miller of the Prologue to the Canterbury Tales, adds a pleasing extra dimension to the Reeve's Tale.¹⁴ It brings into play, within the Tale as well as in its Prologue, the relationship of two of the pilgrims. If this position is accepted, then the audience's attention is first directed towards millers' heads in the Prologue to the Canterbury Tales, where it is stated that the Miller could break a door "at a rennyng with his heed" (GP, I. 551).¹⁵ In the opening lines of the Reeve's Tale itself, Symkyn's baldness is emphasised: "As piled as an ape was his skulle" (RT, I.3935). Here is the first attempt to bring into focus the exterior of the miller's head as a distinctive object. And the description is not allowed to drop. It is on the "pyled skulle" that he is hit by his wife (RT, I.4306).¹⁶

Attention is kept on the miller's head in various ways, both literal and figurative, throughout the story. Symkyn swears "by my croun" (RT, I.4099)¹⁷ as he watches delightedly while Aleyn and John chase the warden's horse; and after sharing food and

drink with them, his drunkenness is described:

Wel hath this millere vernysshed his heed;
Ful pale he was for dronken, and nat reed.

(RT, I.4149-50)

These lines vividly suggest the white, glistening, light-reflecting object that deceives Symkyn's wife.¹⁸ Finally, soon before her blow, Aleyn, mistaking the miller for his friend, calls Symkyn a "swynes-heed", having clasped him round the neck (RT, I.4261-62).¹⁹

It has been appropriate to consider Symkyn's head as an object because that, in the event, is precisely how it appears to his wife: "she saugh a whit thyng in hir ye" (RT, I.4301). The reiteration of the miller's head in various guises draws attention to the importance to the Tale of small physical objects and their behaviour. Consistent and detailed observations of this kind help to promote the reality which the Reeve himself claims to be an integral part of the Tale: "And this is verray sooth that I yow telle" (RT, I.3924) he begins, adding a further disclaimer, "I wol not lye" (RT, I.3976), after the description of Malyn.

(ii) Other Objects

Chaucer's punctilious concern for detailed visual truth is paralleled and supported by other examples. The "kamus" or retroussé nose of the miller (RT, I.3934) reappears on his daughter's face (RT, I.3974), and then recurs at later junctures. After his drinking bout, Symkyn's voice turns nasal: "he speketh through the nose/As he were on the quakke, or on the pose" (RT, I.4151-52); it is Symkyn's snoring, as well as that

of his wife and daughter, which keeps the clerks awake before they plan their nocturnal escapade (RT, I.4162-67); though it is Aleyn's nose that is the first casualty in the fight with Symkyn (RT, I.4275-76). What is remarkable is the extent to which one small item can serve a multiple purpose. It is a realistic detail, this pug nose, that helps to animate the portrait of the miller; the noise it makes, by keeping the clerks awake, advances the plot; and, perhaps most importantly, it is tangible evidence of the unwonted lowliness of Symkyn's true social status - no aristocratic beak, this! - and, in the case of Malyn, of the incongruous nature of her parentage.

The progress of other objects in the Reeve's Tale is more exclusively concerned with verisimilitude. The fortunes of the sack, for example, the object which both parties seek to control, is worth noting. Aleyn throws it on to the back of the warden's horse to transport it to Trumpington (RT, I.4017); and John takes it down on their arrival (RT, I.4021).²⁰ The corn is sacked and bound before the clerks' very eyes (RT, I.4070); but they forget their "housbondrie" (RT, I.4077) to chase the horse and Symkyn removes half a bushel of flour (RT, I.4093).²¹ The sack as an object does not appear again until the closing passage of the poem, when the clerks take their meal back to Cambridge (RT, I.4310), but there is a typical reminder of its continued existence in John's rueful observation of his feelings after Aleyn has seized the initiative and crept into bed with the miller's daughter: "And I lye as a draf-sak in my bed" (RT, I.4206).²² And the sack, this humble, but in terms of the plot, vital object, is suggested each time that the process of milling

is mentioned. Words like "tare" (RT, I.4056), "pekke" (RT, I.4010), "busshel" (RT, I.4244 and 4312), "hopur" (RT, I.4039) and "trough" (RT, I.4043)²³ help to give palpable existence to the paraphernalia of milling of which sacks are a part.

In a similar way, the warden's horse and its trappings achieve a presence unknown to the sources.²⁴ The "gere" which Aleyn prepares (RT, I.4016) is the bridle and rein that Symkyn later removes (RT, I.4063) and to which his wife refers (RT, I.4082-83). Nor does Chaucer neglect to mention the secure tethering of the horse once it has been recaptured (RT, I.4138). Now Bayard's animal instinct when he is released is to give a mating cry and head for the wild mares on the fen (RT, I.4064-66 and 4080-81).²⁵ His sexual impulsiveness echoes that of Aleyn and John, whose coupling with the miller's wife and daughter is described in animalistic, energetic terms: "He priketh harde and depe as he were mad" (RT, I.4231); and Bayard's natural instinct is perhaps a reminder of the parson's promiscuity and its outcome.²⁶

Bayard, whose drives are so much in sympathy with those of other characters in the Tale (even Symkyn snorts like a horse, RT, I.4163) belongs to the warden of Soler Hall (RT, I.4075). It is out of a concern for the warden's property that Aleyn and John react with such urgency to the palfrey's loss, forgetting the importance of watching Symkyn's every move (RT, I.4071-78 and 4084-91). Bayard therefore makes a considerable contribution to the progress of the plot as well as to one of the themes of the poem. The animal exemplifies Chaucer's economical use of a necessary objective component to further the action and sustain thematic unity. But first, the poet has envisaged what a horse

is like and how it behaves. The efforts of the clerks to recapture Bayard, crying in their northern slang, catching him at last in a ditch, and returning to the mill weary and wet, beast-like themselves, "As beest is in the reyn" (RT, I.4100-6), are a representational achievement of a high order.

The spatial implications of Chaucer's approach to objects in the Reeve's Tale are considerable. If, as I have suggested, there is a sustained effort to mention and describe the minutiae of the Tale, then it follows that the overall conception includes a spatial schema that is three-dimensional. It is as if the Reeve's Tale, unlike the fabliau, has come to terms with the ramifications of realism. If there is to be a horse, a sack, a mill, a miller with a bald head and a turned-up nose, then they had better be seen behaving in a way consistent with experience, and in a physical context that is like that of the real world. But Chaucer's realism, bright jewel, is multi-faceted. Only occasionally is it self-justifying; more often it serves a turn. This is especially true of the descriptions of the miller, his wife and daughter which preface the poem.

(iii) Personal Appearance

The presentation of these three figures as living people virtually excludes the third dimension in a purely material sense; they come alive, as it were, later, through movement. But they have a depth of personality that is in part manifested in their appearance. They are therefore worth considering both as an illustration of how visual appearance and psychological reality commingle, and because the larger than life effect of their pretensions creates a sense of personal space which is later, as

we shall see, cut down to size.

I have already drawn attention to the extended functionalism of Symkyn's head. Here at least is one part of the description which exists from the start as something tangible. As well as his baldness and pug nose, Chaucer mentions the roundness of his face (RT, I.3934). As for the rest of his body, there is no mention. One further detail - that on holidays he wore a tipet (RT, I.3953) - relates again to his head, but has more to say about Symkyn's social pretensions. The same is true of the red stockings that he wears. They relate to his body but help to signify his pride.²⁷ A general impression of Symkyn's bodily strength is gained by statements concerning his prowess as a wrestler (RT, I.3928), his aggressiveness at market (RT, I.3936) and, later, his fight with Aleyn.²⁸

There is however a lot of attention given to some objects hung about the miller's person. They are three weapons: a "panade" (a long cutlass with a sharp blade) hung in his belt; a "popper" or dagger in his pouch or pocket; and a "Sheffield thwitel", a larger form of knife, stuck into his waistband (RT, I.3929-33). There is no further reference to any of these, except in the course of the following description of Symkyn's wife, where it is suggested that the miller was quite prepared to use his sword, knife or dagger, "panade ... knyf or boidekyn" (RT, I.3960) if need arose.

Now it is quite unlike Chaucer to introduce in such an emphatic way a detail like this if it has not other purpose than literalism. But the interpretation of the weapons is not immediately obvious. Certainly they signal his aggressiveness and prepare the audience for his sudden, violent attack on Aleyn;

but on the other hand they are never used by the miller in the course of the Tale and the point about his scornful, aggressive, villainous character is made quite adequately by statements to that effect. The fact does not need to be laboured by making Symkyn a walking armoury. The question therefore arises of why this extraordinary collection of cutlery is mentioned at all.

The clue to solving the problem lies in the statements which immediately precede or follow the references to the weapons:

There was no man, for peril, dorste hym touche ...
Ther dorste no wight hand upon him legge
That he ne swoor he sholde anon abegge ...
Ther dorste no wight clepen hire but "dame";
Was noon so hardy that wente by the weye
That with hire dorste rage or ones pleye.

(RT, I. 3932, 3937-38 and 3956-58)

In other words, if Symkyn were to have recourse to his weapons it would be as a defensive act, a response to a challenge from another quarter. And the miller has plenty to feel defensive about. His pretentious social standing is based on a marriage to the illegitimate daughter of the local parson who learnt her polite manners in a nunnery. Symkyn's weapons provide him with a sense of security in an insecure situation by preventing the critical, questioning or prying approach. This is exactly the attitude implied in the word "perilous" (RT, I.3961 and 4189) which is used so appropriately to describe the miller. The root cause of his need for self-defence is revealed most clearly in the third example above. It is precisely to avert an affront to his wife's precarious standing that Symkyn is prepared to take violent action.

The defensiveness goes further. The ambiguous use of "pleye" (RT, I.3958) carries sexual undertones so that Symkyn's desire for

social legitimacy is extended to an over zealous protection of his wife's virtue, ironic in the circumstances both of her descent and later infidelity.²⁹ "Jalous" too (RT, I.3961) carries the double meaning of concern for position and standing, and sexual possessiveness.³⁰ And the meaning of "touche" (RT, I.3932) can be extended in the same ambivalent way.³¹ It is thus not entirely fortuitous, or merely to protect themselves against the hazards of travelling, that John and Aleyn each arms himself with "good swerd and with bokeler" (RT, I.4019) to go to the mill. They are to do battle with Symkyn and gain access to the social and sexual strongholds which he guards so jealously and unjustly. Significantly, it is at the point when their own defences are down, after the miller has released Bayard, that the clerks cast off their weapons (RT, I.4085). In the case of Symkyn's armoury, then, physical objects seem to dissolve before the eye of the beholder. Having little to contribute to the plot, they lack all impression of physical depth. They illustrate an extreme of objects used, not symbolically (they are nominally connected to the world of the Tale) but deliberately to suggest the wider concerns of the poem.

Much the same can be said of the remaining two descriptions. The red gown of the miller's wife - all that is heard of her appearance - indicates social pretension. And the juxtaposition of fair and foul elements in the description of Malyn: "thikke" but "wel ygrowen", "kamus nose" but "eyen greye", "buttokes brode" but "brestes rounde and hye" (RT, I.3973-76),³² while necessarily accounting for her attractiveness in the eyes of Aleyn,³³ is chiefly concerned with the mongrel nature of her parentage and the absurdity of the family's social aspirations.³⁴

C. MOVEMENT

(i) The Mill

It is through movement that these figures come to life in a physical sense. At two points in the Reeve's Tale, both of them concerned with deception, Chaucer pays especial attention to both the act and manner of movement. In so doing he both confers vitality on the individuals concerned and powerfully suggest the spatial milieu in which such activity is possible.

John and Aleyn have taken up their positions, respectively, at the hopper and the trough, to make sure that the miller can practise no trickery. But Symkyn, while they stand thus absorbed, watching how the hopper "wagges til and fra" (RT, I.4039) and how the meal "falles doun/Into the trough" (RT, I.4042-43), seizes his chance. He goes out of the door secretly, "full pryvely" and quietly or "softely" (RT, I.4057-58) and looks up and down for the clerks' horse. His is the very image of the trickster up to no good. He is enacting, as one critic has aptly phrased it, a pantomime,³⁵ in which expressive movement is exaggerated. Symkyn finds the animal in a precise location, behind the mill, goes to it without further caution, "faire and wel" (RT, I.4061-62) and strips off the bridle. Bayard, once loose, sets off "thurgh thikke and thurghe thenne" (RT, I.4066) towards the wild mares on the fen. Symkyn's return to the mill, in keeping with a contrived innocence, is described in neutral terms: "This millere gooth agayn, no word he seyde" (RT, I.4067).

After John's discovery that the horse is missing, the entrance of the miller's wife at speed - "The wyf cam lepynge inward with a ren" (RT, I.4079) - stresses the urgency of the clerks' plight.

They react by dashing off, "ful faste yronne" (RT, I.4090), towards the fen where they search randomly and unsuccessfully for the horse: "Thise sely clerkes rennen up and doun" (RT, I.4100).³⁶ The tempo of movement thus gathers pace from the first stealthy deliberate movements of the miller to the loud, indiscriminate manoeuvres of the students in their mad pursuit of Bayard (RT, I.4100-6). After the climax, the pace slows again with the return of Aleyn and John to the mill:

Wery and weet, as beest is in the reyn,
Comth sely John, and with him comth Aleyn
(RT, I.4107-8)

Stasis is finally reached with the miller sitting by the fire (RT, I.4114-17). At the same time as the rise and fall in tempo, there is a widening then contracting of the spatial area - from the mill to the fens and back again - which begins and ends with internal details of the mill and the house: the hopper and trough, and then the fireplace. So the speed of action is closely tied to spatial extent: the slower, the narrower, the faster, the wider.

(ii) The Bedchamber

In the case of the miller's bedroom, however, a similar escalation from slow to fast movement is contained within the same small space. The effect is to accentuate to a marked degree the presence of a three-dimensional interior, in which the stage is set. On this occasion, it is the clerks' turn to be discreet, cautious and quiet. Aleyn "crepte" into Malyn's bed (RT, I.4193) and his 'playing' with the miller's daughter contrasts with the inertia of John, who lies still like a "draf-

sak" (RT, I.4199-204) until he too gets up and goes "softely" to the cradle at the foot of the miller's bed, carrying it back "softe unto his beddes feet" (RT, I.4211-13). The unsuspecting movement of the miller's wife out of the room and back again (RT, I.4215-16) compares with that of John when he leaves the mill for the first time without knowing that Bayard is missing (RT, I.4070-71); and the openness with which she climbs in with John, "faire and wel" (RT, I.4226) is like the miller's confidence that he can release unseen the clerks' horse (RT, I.4062), though without the latter's awareness of what he is doing. Once having lured the wife to his bed, John can emulate the intimate sexual movement of his fellow. He leaps on the woman and allows her no respite (RT, I.4228-30).

Movement is conditioned in the bedroom by the darkness. The wife, returning, must rely on her sense of touch. Having missed the cradle at her own bed, she "groped heer and ther" fruitlessly in empty space (RT, I.4217). Thinking to have arrived by mistake at the clerks' bed she sets off to find the cradle and "gropeth alwey forther with hir hond" (RT, I.4222). This transference of space perception from sight to touch is a crucial contribution to the reader's impression of the interior. It is as if forms and their relationships are made palpable. Aleyn too, having bid farewell to Malyn, "fond the cradel with his hand" (RT, I.4251) and orientates himself towards the other bed. When John is rudely woken by the ensuing fight of Aleyn and the miller, he goes groping for a weapon: "And graspeth by the walles to and fro,/To fynde a staf" (RT, I.4293-94). The containing limits of the chamber are here literally felt. The

word 'interior' is in fact used and its presence further reiterates the importance placed on the presence of space in the dénouement: Symkyn's wife is more successful in finding a staff than John because she "knew the estres bet" (RT, I.4295).

The transition from slow, stealthy, deliberate movement to fast, no-holds-barred random activity is extremely abrupt. Aleyn creeps into bed by the miller, clasps him round the neck, and tells all. Symkyn is enraged not so much that his daughter has been debauched but that a 'poor' clerk with a northern accent should be the perpetrator:

Who dorste be so boold to disparage
My doghter, that is come of swich lynage?

(RT, I.4271-72)

Symkyn's hopes for the future status of his family are now dashed and his consequently violent reaction amply bears out the promise of what he would do, weapons or no weapons, to anyone who 'dorste' affect them adversely.³⁷ The miller grabs Aleyn by the throat, breaks his nose bloodily and a hell breaks loose that soon involves his wife and John though not Malyn. The room is bursting with strenuous activity:

And in the floor, with nose and mouth tobroke,
They walwe as doon two pigges in a poke;
And up they goon, and doun agayn anon,
Til that the millere sporned at a stoon,
And doun he fil bakward upon his wyf.

(RT, I.4277-81)³⁸

"Up and doun" is used also of the clerks' method of searching for Bayard and it suggests arbitrary movement the outcome of which is in doubt. In the midst of this confusion, the wife strikes Symkyn on the head, "doun he gooth" (RT, I.4307) and the clerks can together deal the final blows.

D. LOCUS OF ACTION

(i) The Bedchamber

It is the variety of movement - stealthy, unsuspecting, groping, violent - that adds such vivacity to the closing scene of the Reeve's Tale. All this can only happen in three-dimensional space, but of course movement is not the only way in which the containing volume of the bedroom is evoked. Size, position and distance are specified in a quantitative manner that reinforces more suggestive methods. The miller, in his speech on physical and psychological dimensions, refers to his house as small or "streit" (RT, I.4122), and in support of this the Reeve himself offers an explanation of why John and Aleyn had to be lodged in the same chamber as Symkyn and his family:

It myghte be no bet, and cause why?
Ther was no roumer herberwe in the place.

(RT, I.4144-45)

The Reeve also states the distance between the miller's and clerks' beds. It is "ten foot or twelve" away (RT, I.4141). Evidently it is too near for Aleyn, who complains that the cacophonous snoring of miller, wife and daughter could be heard at two furlongs (RT, I.4166). The daughter's bed, says the Reeve, is "by and by" in relation to that of her parents, but quite separate (RT, I.4142-43); and he later refers to the approximate distance between the clerks' bed and that of Malyn as "a furlong wey or two" (RT, I.4199). The cradle for its part is directly at the foot of the miller's bed so that it can be rocked and the child fed (RT, I.4156-57). It is amusing that the objective distance between the bed of Malyn and the miller

becomes "a twenty devel wey" after Aleyn has finished his night's mischief, unaware of more to come (RT, I.4257).³⁹

This mensuration is by and large a narrative 'plant' to give some credence to the bed-swapping episodes. But it does produce an impression of the critical arrangement and space between the separate beds and cradle, spaces that are crossed several times during the night, and most dramatically by Aleyn and Symkyn in the course of their brawl. Without the necessary preparation, the farcical business and slapstick walloping would be all the less effective. The stage has to be set. Finally, the position not only of the beds but also of their occupants implies a certain accessibility from the point of view of the clerks. Malyn lies on her back "uprichte" (RT, I.4194), a fact which Aleyn reiterates in his account of the night's doings (RT, I.4265-66); John, for his part, is virtually caught redhanded after he has leapt on the miller's wife and subsequently fallen asleep. "Ther lyth oon upon my wombe and on myn heed" she complains, waking up confused (RT, I.4290).

(ii) Buildings

Considered architecturally, there is surprisingly little information given about a building in which so much happens.⁴⁰ The opening three lines, however, though providing no sense of the external appearance of Symkyn's property, do provide a definite impression of its physical existence as the visual focus narrows down from Cambridge to Trumpington to stream to bridge to mill.⁴¹

The reader tends to assume that Symkyn's mill and his "hous"

(RT, I.4122) are one and the same building, especially as the latter house reference occurs after John and Aleyn have specifically directed themselves to the mill (RT, I.4115). In fact, mill and house are separate. Malyn, speaking to Aleyn within the house, tells him to take the cake from its hiding-place "Whan that thou wendest homward by the melle" (RT, I.4242). This is exactly what Aleyn and John do, after they have left the house: "and on hir wey they gon./And at the mille yet they tooke hir cake" (RT, I.4310-11). This split location of the Tale is something that Chaucer has inherited from his sources.⁴² Such an arrangement necessarily involves a good deal of superfluous movement and it is characteristic of Chaucer's narrative economy that he has blurred the distinction between house and mill when it has so little to add to the plot.

But when an excuse is provided to insert a specific detail of architecture, then Chaucer spotlights it in a way that suggests a good deal of the physical context. For example, Symkyn has to *circumambulate* the mill when he goes looking for the clerks' horse. He finds it bound "Bihynde the mille, under a levesel" (RT, I.4061). The sudden appearance of a 'leafy arbour' or 'lean-to',⁴³ as if its existence is taken for granted, is perhaps a more efficacious means of implying a spatial locale than an extended account of physical factors which have no direct bearing on the action of the Tale.⁴⁴

The principle of narrative economy - that no physical details should be introduced unless they have a functional or expressive raison d'être - exerts a tight controlling influence over the appearance of the interiors. Most of the details and

their purpose have already been mentioned: the machinery of the mill (RT, I.4036-45), the fireplace (RT, I.4116) and the chamber (RT, I.4143-45). In addition, the mill doorway is used as a versatile prop. Symkyn creeps out of it to release Bayard (RT, I.4057); his wife comes running through it to alert the students of the horse's loss (RT, I.4079); and the cake is hidden behind it (RT, I.4243-45 and 4311-12).

The various movements to and from the house-mill help to sustain the impression of its being a tangible, containing edifice. The students twice approach it, once by day and once by night, in contrasting moods of elation and depression (RT, I.4018-22 and 4107-15); the miller goes out and returns in the course of perpetrating his trick (RT, I.4057-67); and his daughter makes a journey from the house to the town and back to fetch provisions for the clerks' meal (RT, I.4136-37).

(iii) Topography

More than the approaches and departures of the various protagonists, the topography and geography of the Tale reinforce the accepted presence of the mill and house. Here is a place, says the Reeve, that actually exists, and a mill which may be visited. Such descriptive precision is beyond the ken of the fabliau version, which stresses typical, not unique qualities of mills and their rascally proprietors. The opening lines of the Reeve's Tale are quite exceptional in their straightforward accuracy.

Trumpington is a mile's walk from Cambridge across Grantchester Meadows. A half-mile to the west of the village is a bridge that passes over a subsidiary of the Cam and on which there stands, at the present day, Mill House.⁴⁵ To the south-west

of the mill site is Lingay Fen. In the village of Trumpington itself the architecture of the parish church dates from the early fourteenth century.⁴⁶ Thus the modern topography is still highly evocative of the setting of Chaucer's poem; and the degree of correspondence between the described and the real confers on the poem a spatial resonance of an unusual kind.

The Reeve's "And this is verray sooth that I yow telle" (RT, I.3924) is seriously intended. Here is the position of the mill, stream and bridge, the village or 'toun' (RT, I.3977) with its church where the parson fulfilled his more saintly obligations,⁴⁷ the fen where wild mares run with its drainage ditch in which the clerks catch Bayard (RT, I.4106), all done from the life. Cambridge too, with its Soler Hall,⁴⁸ manciple, warden and necessary business link with the miller, comes alive, though not through visual description (RT, I.3989-4012). Its existence as the distant city is felt through the clerks' presence until their return there at the end of the story. There is a reference too to another place in the locality when the miller's wife swears by the holy rood at Bromholm (RT, I.4286). And the origins of the clerks at "Strother,/Fer in the north" (RT, I.4014-15) introduces a wider sense of location⁴⁹ which is sustained through the use of dialect words by the Reeve himself.⁵⁰ But in general the most impressive spatial effects are achieved through topography, not geography. The conception of place in the Reeve's Tale is not done, as it were, from a map, but rather from sight.

E. SIGHT AND SPACE

(i) Sight and Sleight

The importance of sight in the Reeve's Tale ought not to be underestimated, for it is often through an act of perception, in which the relationships between forms are made apparent, that space is realised. Sight also has a significant thematic connection with the poem. In the Prologue, stung by the Miller's tale against a carpenter, Oswald the Reeve states his intended revenge in these terms: "full wel koude I thee quite/With bleryng of a proud milleres ye" (RP, I.3864-5). The idiom 'to blear the eye' is a common one,⁵¹ but in this case neatly summarises the extent to which the Reeve's story is a saga of visual deception.

The prolonged skirmishing between Symkyn and the clerks soon resolves into a matching of sight and sleight. It is to "seen hir corn ygrounde" (RT, I.4008) that Aleyn and John wish to go to Trumpington, in order that the miller "sholde not stele hem half a pekke/Of corn by sleighte" (RT, I.4010-11).⁵² As soon as Symkyn is alerted to the clerks' intention, he too thinks of the situation in the same terms, typically upgrading it to a struggle of native wit against educated intelligence: "yet shal I blere hir ye,/For al the sleighte in hir philosophye" (RT, I.4049-50). From this point onwards, the blearing of the clerks' eyes, and their attempt to prevent it, is translated into practical terms. Aleyn and John are so intent on watching the process of grinding that Symkyn can sneak unseen to release Bayard. Once his sleight has worked and Symkyn "saugh that they were gon" (RT, I.4092), he can get on in secret with the removal of half a bushel of flour, looking with glee after the

disappearing forms of the horse and its pursuers: "Lo, wher he gooth! ye, lat the children pleye" (RT, I.4098).

In the final scene of the Reeve's Tale, it is the two students who practise sleight against the miller and his family. But on this occasion, deception is pitted not against sight; rather it depends on its absence. Darkness has disrupted the perception of space so that the miller's wife can be directed to the wrong bed. So, disastrously, is Aleyn. Chaucer takes some care to suggest that the reappearance of a gloomy half-light, and the consequent improvement in visibility, is a necessary condition of the final confusion. The accurate perception of space depends on clear sight. First, he draws attention to the imminent approach of dawn. The two clerks lie in bed with the miller's wife and daughter "Til that the thridde cok bigan to synge" (RT, I.4233). Dawn is just about to break, for "Aleyn wax wery in the dawyng" (RT, I.4234) and, appropriately enough, he delivers a mock aubade to Malyn (RT, I.4236-39).⁵³ But there is not yet any daylight; it is the darkest hour. Aleyn is unable to find his own bed, and comments: "Er that it dawe,/I wol go crepen in by my felawe" (RT, I.4249-50). John, in the absence of any light, feels his way along the walls to find a staff (RT, I.4293-94), and it is only the wife's superior knowledge of the interior that allows her to find one (RT, I.4295-96). After all this blackness, the silvery light of the moon, faintly illuminating the struggling figures of Symkyn and Aleyn, makes an arresting appearance. Sight is partially restored. The miller's wife

... saugh a litel symeryng of light,
For at an hole in shoon the moone bright;
And by that light she saugh hem bothe two ...

(RT, I.4297-99)

(ii) Stalk and Baulk

As well as the 'blearing of the eye' expression, the Reeve's

Prologue contains a second idiom directly to do with sight.

This time it has biblical origins.⁵⁴ At the end of his

embittered remarks on the Miller, the speaker adds:

He kan wel in myn eye seen a stalke,
But in his owene he kan nat seen a balke.

(RP, I.3919-20)

What makes this comment particularly apposite and caustic is the way the word 'stalk' and 'baulk' refer directly back to the Miller's Tale, where the stalks are the upright supports of the ladder down which Nicholas 'stalks' to go to bed with Alison (MillT, I.3624-26 and 3648-49); and the 'baulks' are the cross-members of the beams in which the carpenter, which the Reeve takes to be a caricature of himself, sleeps on oblivious. The application of these two lines in terms of judgement has a patristic basis that has been explored by Olson;⁵⁵ but they also have a strong literal connection with the plot of the Reeve's Tale as they do with that of the preceding Tale.

When the miller's wife makes her crucial error of judgement at the end of the Reeve's story, it is described in a way that recalls the mote imagery of the Prologue:

But sikerly she nyste who was who,
But as she saugh a whit thyng in hir ye.

(RT, I.4300-1)

Given this defect of vision, Symkyn's wife hits her husband on the head instead of what she takes to be Aley's night-cap.

Suddenly, the scene is presented from an individual's point of view, her mistake related to the psychology of perception.

Thus a connection is again established between the image of a

metaphorical saying, and a physical image within the fabric of the plot. This Chaucerian practice contributes to the unity of the Tale and, in the present instances, suggests that the inter-dependence of light, sight and space is an important thematic concern.

(iii) Symkyn's Speech on Space

Aleyn and John, weary, wet and disgruntled after chasing the warden's horse over the fens, return to the miller's house to find Symkyn sitting smugly by the fire. The students know that the miller has triumphed: by releasing Bayard and diverting their attention, he has been able to steal some of the college's flour. But Symkyn sees his victory as more than a piece of successful villainy. He has outwitted the learned clerks. This aim has been apparent from the start: "yet shal I blere hir ye,/ For al the sleighte in hir philosophye" (RT, I.4049-50); "Yet kan a millere make a clerkes berd,/For al his art" (RT, I.4096-97). The miller's attitude exemplifies the driving force in his complex character: the desire to be superior, to be better than his betters, which has found expression hitherto in social ambition and greed.⁵⁶

The giving of shelter to the clerks is the turning-point in the narrative. Without knowing it, Symkyn in the complacency of success has provided the students with the opportunity to wreak their revenge.⁵⁷ The miller is so self-satisfied that he can almost afford to be generous and provide hospitality in a house that is really too small for guests. Of course, there are limits. The goose is fetched and roasted, the wine poured,

the sheets and "chalons faire" laid on the bed only after the 'poor' clerks have shown their silver (RT, I.4135-47).⁵⁸ For the moment, Symkyn is at his most elevated and ebullient, the clerks at their lowest. He can only fall while they rise.⁵⁹

The hub of the episode, and in some ways of the entire poem, is the carefully phrased speech which the miller delivers to the clerks on their return.⁶⁰ It is clerkly, a jeu de mot. Symkyn presses home his advantage while staking a claim to be a wit equal to if not better than any university student.⁶¹ His words have a particularly pointed effect coming immediately after John's complaint that he and Aleyn have made fools of themselves in the eyes of their warden and college fellows as well as the miller: "Now are we dryve til hethyng and til scorn" (RT, I.4110). The clerks too, in their own way, are concerned with status and reputation.

The subject of Symkyn's little disquisition is twofold; while dealing ostensibly with the small dimensions of the house, he also refers to practices of learned argument and philosophical speculation. He is like the self-educated father who feels he must keep ahead of his son's university education. The tone is conceited and patronising:⁶²

Myn hous is streit, but ye han lerned art;
Ye konne by argumentes make a place
A myle brood of twenty foot of space.
Lat se now if this place may suffise,
Or make it rowm with speche, as is youre gise.

(RT, I.4122-26)

There is a sense of competitiveness, of challenge, underlying these lines.⁶³ 'You are students,' says Symkyn, 'you are supposed to be intelligent. Here is a problem. Now let's

see if you can solve it.' His words carry the implication that clerkly wit is not much use against the native wit which he has just employed so successfully in the matter of the corn.

Clerkly wit is mere words and mere words cannot enlarge a room.

But the narrowness of which Symkyn speaks is not just related to the architectural dimensions of the house. It is the clerks' custom, he says, their "gise", to use speech and arguments to augment and enlarge the subjects of dispute. Their "art" or training in the Faculty of Arts has taught them to do so. Now it is just this intellectual approach which has patently failed. Aleyne and John, having conceived a plan for outwitting the miller, have put it into practice to find that their foregone conclusions are no match for the wily, ad hoc stratagem of Symkyn. Ironically, they have succeeded in putting themselves in the wide expanse of the fens - a place a "myle brood" - when it was their intention to remain within the narrow confines of the mill and watch the miller's every move. They expanded their "twenty foot of space", as is the habit of students, quite irrelevantly, missed the point of the horse's disappearance, and thus allowed Symkyn to gain the upper hand.

All this is in the past. The miller is now anticipating the next round of the dispute, asking the clerks if they think that the changed place of action will now be sufficient for their purposes: "Let se now if this place may suffise". Symkyn is thus acknowledging tacitly that physical location is but a context for the contest of wit that informs their respective motivations.⁶⁴ The occasion of the contest is the miller's habit of stealing corn, but this becomes somewhat incidental as the real grounds for

competing become clear: certainly it is a match of wits; but it also becomes an attack, unwittingly perhaps, on Symkyn's other pretensions.⁶⁵

In the event, Aleyn and John find the small space of the chamber quite adequate to their purpose. The smallness of the room and the accessibility of its occupants allows them to seduce the miller's daughter and wife (in which speech plays no part at all; it is an ad hoc approach like that of the miller). And the chamber is also adequate in a non-physical sense. Where previously the students' room for manoeuvre had been controlled and dominated by Symkyn, they in turn now control and dominate the space of the miller in his own home. In so doing, the clerks win the second trial of wit and expose the flimsy basis of Symkyn's respectability. His wife and daughter, by behaving as they do, bring about the destruction of his social ambitions. On three counts, therefore, the miller's 'space' - his influence and pretension - is curtailed: as a thief, as a wit, and as a nouveau riche. Chaucer's carefully articulated three-dimensional interior emerges as a means of embodying fundamental aspects of the Tale.

(iv) Space as Theme

The space which Symkyn controls at the beginning of the poem is, strictly speaking, that of the mill and the house. But his influence is felt further afield. He has "Greet sokene", takes a great toll, of all the land about (RT, I.3987-88).⁶⁶ Because of his exclusive control, he can do what he likes. But Symkyn oversteps the bounds of accepted thieving and the baneful effect

of his dishonest practices becomes unbearable at Cambridge, when the illness of the manciple of Soler Hall allows him extra leeway:

For therbiforn he stal but curteisly,
But now he was a thief outrageously,
For which the wardeyn chidde and made fare

(RT, I.3997-99)

The activities of the rascally miller impinge on his clientèle to such an extent that they feel they must restrict such malpractices. For this reason, Aleyn and John journey to Trumpington. Here then is a spatial image of the miller's overreaching himself, becoming too big for his own good. It is played out against a background of actual spatial control, as is the second theme, the matching of wits.

In this second instance, space operates as an index of the progressive successes and failures of the 'game'. The matching of wits is a conscious intention of Aleyn and John from the moment they decide to visit the mill. They are determined, "they dorste leye hir nekke" (RT, I.4009), that they can beat the miller at his game. Symkyn immediately recognises the lie of the land when the clerks insist on watching him at work:

This millere smyled of hir nycetee,
And thoghte, "Al this nys doon but for a wyle.
They wene that no man may hem bigyle ..."

(RT, I.4046-48)

Both sides are therefore tacitly aware of the game that is being played, and the repeated use of the word 'play' in a variety of contexts sustains this idea. When the clerks have been driven out to the fens, they feel that they have lost the stakes for which they have played: not only is the corn lost but they are likely to be thought fools, not master wits, in the eyes of the miller, the warden and their fellows (RT, I.4109-13).

It is the mutual awareness of the clerks and the miller of their respective motives that makes Symkyn's speech on space so rich. It is the closest approach, before the final fiasco, to an open acknowledgement of what has been going on not just in terms of pilfering but also in terms of the struggle for superiority, as spatially expressed. Interestingly, the sense of wit matching is dropped at this point in the Tale. When Aleyn and John plan their nocturnal escapades that lead to the final defeat of the miller, they see their activity from a legalistic point of view, as a means of getting a just retribution for the wrongs inflicted on them (RT, I.4177-87).⁶⁷ Perhaps this is because space, having imaged successfully the competition between Symkyn and the clerks, must now be recruited in the service of another theme, the deflation of the miller's social pretensions.

For there is much more involved in the final scene, as there has been to a lesser extent throughout the previous practical trickery, than either the matching of wits or the discrediting of Symkyn's stealing. It is the miller's inflated social ideas, which occupy so much of the psychological space of the Tale that are in the end restricted, curtailed, cut down to size. There is no point in reiterating how the opening lines, giving the social history of the miller and his family as expressed through their appearance and behaviour, demonstrate both the overweening pride which the miller takes in his status, and the precariousness of his respectability. It is precisely this which is exposed by the swyving of Malyn and his wife: they have behaved in accordance with their origins. And in two brief lines that hardly disrupt

the progress of the action, Symkyn acknowledges that the bubble of his pretension has been burst:

Who dorste be so boold to disparage
My doghter, that is come of swich lynage?

(RT, I.4271-72)

For the third time, therefore, the movement of the spatial concept, reinforced by the space of the physical world itself, is the same: the containing within proper dimensions of the enlarged conceit of the miller of Trumpington.

F. FRAGMENT I IN RETROSPECT

It is now possible to review Chaucer's use of light, vision and space in Fragment I of the Canterbury Tales. In the Knight's Tale, a dramatic act of vision and a contrasting account of light and darkness characterize and make vivid the sighting of Emily, the single event from which all subsequent action derives. Three loci - the tower prison, grove and lists - are then each given a distinctive spatial accent in order that they might help to express different philosophical ideas, respectively constraint, free will and destiny. The idealistic world of the Knight's Tale gives way to the realistic one of the fabliaux. The sense of space here has much more to do with objective description of people and things, their movements, and the interiors in which the action takes place. In the Miller's Tale, there occurs another case of imprisonment, that of a young girl by her elderly husband. Here, Alisoun is untroubled by metaphysical speculation and escapes while remaining within the confines of her material prison by seeking sexual freedom. As if to add further to the ironic links between the Knight's Tale and Miller's Tale, Chaucer makes the window of the second Tale as important in its context as that of the first. It is a channel of communication for the lover, Absolon, and it gives rise to much of the action, but it is a means of physical contact rather than anguished separation.

In spite of its apparent lack of pretention, the Miller's Tale no less than the Knight's Tale uses the sense of space as a method of shaping meaning. It is connected with Alison's caging, with the fantasies of John and with the rivalry of the

two suitors. Similar connections are present in the Reeve's Tale, where Symkyn's social pride, professional malpractices and intellectual pretensions are the subjects expressed through the manipulation of space. The metaphorical status of space is particularly prominent in the centre of the Reeve's Tale, where the miller taunts the students with his success in maintaining control of his own territory. To make that territory, particularly the bedchamber, three-dimensional, Chaucer judiciously describes the details of the interior, but also makes full capital from the visual consequences of darkness and weak light.

Attention has already been drawn to an article by Joseph on the sense of space in Fragment I of the Canterbury Tales.⁶⁸ Joseph argues that space, carefully differentiated to take account of the characters who inhabit it, is a unifying element in Fragment I and in the pilgrimage framework in general. The cook alludes to the sense of space as the "argument of herbergage" (CoP, I.4329) and it is first encountered in the accommodation provided for pilgrims in the General Prologue. In presenting the Tabard as a place of capacious, all inclusive conviviality, Chaucer establishes it as one of the reference points from which the activity of pilgrimage derives its meaning. It embodies the idea of pilgrimage as pleasant, worldly diversion:

The chambres and the stables weren wyde,
And wel we weren esed atte beste.

(GP, I.28-29)

The specificity of locus and the activity of the guests does much to make the Tabard substantial:

... assembled was this compaignye
In Southwerk at this gentil hostelrye
That highte the Tabard, faste by the Belle.

(GP, I.717-19)

At the other extreme is the anonymous "thropes ende" (ParsP, X.12) of the final stage of the journey as, in the words of the Parson, he attempts

To shewe yow the way, in this viage,
Of thilke parfit glorious pilgrymage
That highte Jerusalem celestial.

(ParsP, X.49-51)

The pilgrims now appear to be on their way to a Christian paradise, where the limitations of human space dissolve in an all embracing infinity.

Such an account of the sense of space in the framework of the Canterbury Tales fits well with what we have observed of the Tales of Fragment I and Fragment VIII, namely that space and its concomitants, light and vision, move effortlessly from the status of physical fact to metaphor. There has also been occasion to discuss a precedent for the juxtaposition of human and divine dimensions in Troilus and Criseyde, in which Troilus finally transcends the limitations of the material world. Unfortunately, the sense of space in the framework of the Canterbury Tales is sporadic, partly because of the fragmentary state of the collection and partly because of the multiple demands which the framework serves. In these circumstances, any conclusion concerning Chaucer's manipulation of space in the pilgrimage framework must remain tentative.

CHAPTER 9:

THE ARTISTIC CONTEXT - DEVELOPMENTS IN PICTORIAL SPACE

A. INTRODUCTION

The preceding discussion of Chaucer's poetry in Fragments VIII and I of the Canterbury Tales has shown how integral to his work are ideas of light, vision and space. Light is presented both as an essential component of the visual world and as a metaphor used to express intellectual and spiritual striving. Perception, both in its inner and outer forms, is a significant topic throughout the five poems. Space, for its part, has emerged as one of the most important aspects of visual experience as Chaucer represents it; for space, or the way the individual apprehends it, is the meeting place of the subjective and objective worlds. In an earlier section it was argued that Chaucer's treatment of light, vision and space could best be understood in relation to the medieval tradition of scientific optics and the various routes which that tradition took through encyclopedias, sermons and vernacular literature. It is to be hoped that Chaucer's creative practices have become more intelligible in the light of that framework. But of course he was not the only recipient of the rich bequest which the optical tradition left. It has already been seen that French and Italian poets benefited from it. There is also strong evidence to suggest that the trends observable in Chaucer's poetry have parallels in other forms of artistic expression: for example, in the manipulation of light and space in Gothic architecture.¹ It is, however, in painting that attitudes to light, vision and space develop in ways most similar to those found in Chaucer.

It must be stressed that the juxtaposition of literature and

art is meant to bring Chaucer and contemporary painting into an analogous or suggestive not causative relationship. Nevertheless it is a relationship to which his readers might have responded. Space and light, represented as optical truths, were literally before the eyes of educated laymen of the fourteenth century in the forms of paintings. This fact, apart from the other optical influences already discussed, must have facilitated a more responsive reaction to Chaucer's handling of the same phenomena.²

It is then the intention of the present chapter to revert to the larger cultural context with which the thesis began and suggest, from a different point of view, that Chaucer's various uses of light, vision and space may be regarded as part of a larger cultural development which is manifest in other, non-literary art forms. The following pages will therefore indicate some of the major developments in pictorial space during the fourteenth century and make some concluding observations on the direct benefit of scientific perspectiva to painters of the Quattrocento. The emergence of artificial perspective is an Italian phenomenon the groundwork of which was laid in the late Ducento by artists such as Duccio and Giotto. The unsystematised forms of space which they and their successors developed influenced artistic practices throughout Europe. The two other countries of particular concern here are France and England. In France, Italian spatial forms were imitated and elaborated, while in England they made sporadic inroads into the vernacular style.

The problem here arises as to whether Chaucer was directly influenced by the presence of pictorial space in pictures that he might have seen. Clearly he was something of a connoisseur.³

His detailed account of the portrait of Venus and of engraved stories of Aeneas and of Dido in the House of Fame,⁴ or his descriptions of the paintings which adorn the oratories of Venus, Mars and Diana in the Knight's Tale, paintings which he 'composes' from non-pictorial sources in Boccaccio,⁵ point to a pictorial sensibility of an unusual sort. Not only at a descriptive level, but also in the use of pictorial iconography, Chaucer reveals that he has seen and absorbed the effect of various contemporary paintings.⁶ Exactly what he saw must remain a matter for speculation.⁷ At the same time it ought to be remembered that he was, during his career, in a particularly good situation to view some of the key works in which space was used in a new or innovatory fashion. The diplomatic trips to Italy and especially Florence, his missions to France, and his work as Clerk of the King's Works all furnished him with appropriate opportunities.⁸ But there is no hard evidence to suggest that Chaucer did respond in any positive way to pictorial space as such. Certainly his descriptions of paintings do not suggest any perspective arrangement of the subject matter. It is best then to view the development of pictorial space as something parallel to his own use of space and sight in poetry. The parallel shows the extent to which Chaucer was alive to progressive tendencies in the European art forms of his time.

Pictorial space has been conveniently defined by Panofsky as

... an apparently three-dimensional expanse, composed of bodies (or pseudo-bodies such as clouds) and interstices, that seem to extend indefinitely, though not necessarily infinitely, behind the objectively two-dimensional painting surface ...

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In the course of the fourteenth century there is a developing

tendency among painters to dissolve the materiality of the painting surface, to urge the observer to look through, as he might through a window, rather than to look on, by using illusionistic devices of ever increasing efficacy.¹⁰ The movement towards spatial illusionism is not by any means a straight march of progress. There are reversions, checks and reactions. The history of this fascinating process has been told by such writers as Panofsky, Bunim, Meiss, White and McCorkel and there is no point in repeating it in detail here.¹¹ The scope of the present study is limited to a handful of significant works from each country. In these, the emphasis will fall on the technical and compositional devices used to convey a sense of the third dimension in a two-dimensional plane. The history of picture space in Europe in the fourteenth century is marked by an enlargement in the number of visual cues included by artists to create recessional effects. The aim therefore is to establish the nature and range of such visual cues as they had emerged by the end of the late 1300's.

B. HISTORICAL BACKGROUND

(i) Classical

If developments in the fourteenth century are to be seen in their proper historical context, they must be placed against antecedent attempts to create or eliminate pictorial space. This may briefly be done with reference to classical, Byzantine, Romanesque and Gothic painting. For the Trecento conquest of pictorial space was both a rediscovery of classical techniques and a reaction against the non-spatial tendencies of Christian art. The real 'discovery' of visual cues to suggest depth on a flat surface must be accredited to Greek artists. Vases from the seventh to fourth centuries B.C. reveal a steadily growing repertoire of such devices as overlapping of one form by another; foreshortening of people and animals and then of objects; oblique settings of rectangular objects; a shift from a high point of view to a lower one, signalling the birth of the ground-plane; an attempt to co-ordinate discrete spatial forms within a coherent interior space; and the modelling of figures and their disposition on different levels and in novel postures.¹²

Surviving landscape paintings of the Hellenistic period (fourth to first century B.C.) reveal further extensions to this list: forms diminish in proportion with distance and the more distant ones are elevated in the picture plane; there is a scaling of colour values to take account of the diluting effect of distance; figures and objects cast shadows and catch the light; and the point of view is stable.¹³ The impetus for painting both landscaped and interior scenes may have come from the drama, where different types of stage setting were prescribed for different

types of play.¹⁴ Vitruvius, writing c.25 B.C., refers to the recessional character of dramatic scene-painting:

Item scaenographia est frontis et laterum
abscedentium adumbratio ad circinique
centrum omnium linearum responsus. 15

This passage and others like it¹⁶ have given rise to a controversy as to whether Vitruvius was or was not referring to a systematic, vanishing-point perspective.¹⁷ The pictorial evidence suggests that he was not, although a number of paintings obey an approximate system of converging orthogonals.¹⁸ The academic dispute as to the nature of the system ought not to obscure the important fact that only in the fifteenth century were the perspective effects of Hellenistic art superseded.

The use of perspective in Hellenistic art and of other visual cues for depth may be studied in the frescoes at Pompeii, preserved by the volcanic eruption of A.D.79. These are provincial imitations but nevertheless indicative of the range of spatial devices accessible at the time.¹⁹ The painting of 'Thetis in the Workshop of Hephaestus', a late work of the Third style (A.D.14-63),²⁰ uses an architectural screen as background (Pl.I). The jutting corner of the obliquely drawn abacus and of the stone block at centre right suggest the existence of space beyond the figures. Productive of foreground depth are the obliquely set seats and footrests. The receding edges of the oblique forms do not converge, but their foreshortening is consistent with the point of observation level with the reflection in the shield, the centre of attention. So the seats and footrests are seen from above, the abacus from below and the stone pedestal from its own height.

Light reflections and shadows give further solidity to the various forms. This effect is particularly noticeable in the

pillar, the back of the armourer and his cap and on the front edge of the shield. The highlights seem to suggest a light source to the left of the scene. An extensive ground-plane allows for an uncrowded organisation of the various elements in the composition, which are elevated in the picture-plane in relation to their distance from the observer. The overlapping of these forms is a simple but crucial visual cue for suggesting depth between them, while the foreshortening of the figures and of the shield is in accord with the point of view already mentioned. The plastic modelling of these figures and their individualistic postures give the sense that they necessarily generate or need room in which to move. In particular it is the averted figure of the armourer which contributes much to the impression of space in the central foreground. To this consideration must be added the glances of the other figures, which converge on the shield like the radii of a sphere on its centre. Pictorial space is controlled and organised here in the best interests of its subject matter.

(ii) Byzantine

The spread of Christianity sealed the fate of picture space as it was known in the Hellenistic era.²¹ The new religion stressed the fundamental importance of the immaterial, and as a consequence artists turned their attention from representing the perceptual truth of an objective world to conveying the conceptual truth of a spiritual world. Symptomatic of this shift in attitude are the writings of Plotinus (A.D.204-270) on 'vision'. For Plotinus visual appearances are deceptive. Foreshortening may

mask rather than reveal the true dimensions of an object:

Or it may be that we observe the magnitude of an object by observing the salience and recession of its several parts, so that to perceive its true size we must have it close at hand.

22

The passage in which these lines occur leads Grabar to conclude:

Ideally then, according to Plotinus, every image which is to lend itself to fruitful contemplation should be set out in the foreground and the component parts of the image arranged side by side on a single plane.

23

Elsewhere, Plotinus associates corporeity with matter, and light and colour with form. The mind responds to form and so with painting the eye should register the illuminated colours of the picture plane to the neglect of formal volume.²⁴

Of course, the change to depicting the truth as seen by the inner eye did not happen suddenly. The various types of Hellenistic picture space continued to be used in the early Christian centuries but their appearance became more and more restricted and vestigial.²⁵ In later centuries, the West saw the revival of spatial depth based on classical models, notably in the Carolingian (eighth to ninth centuries) and Ottonian (tenth to eleventh centuries) periods.²⁶ But these revivals were imitative, not exploratory, and they had no lasting effects. The case of Byzantine art is more intriguing because it manifests at once the most extreme reaction against spatial illusionism and yet, by virtue of its Greek provenance, the most conservative retention of certain recessional techniques.

Byzantine art inverts optically based principles of perspective and represents more distant forms as larger than those in the foreground. Such 'background' figures are then placed

above them in the same frontal plane. Size is hieratic: it does not relate to distance but to the importance of the image represented. The implied depth of the picture is not behind its surface, but in front of it. It involves the observer, who contemplates a composition devoid of naturalistic light and shade but shimmering with a metaphysical splendour.²⁷ The presence of gold backgrounds locates the forms in the frontal surface, the dominant plane. Jagged rocks may divide the scene or form a backdrop, but where overlapping occurs the background forms are elevated, so minimising the recessional effect. The viewpoint is varied within individual compositions and where orthogonals meet they do so at different points. In consequence there occur 'impossible objects' which appear to float in air since such forms have only the most tentative of relations with the ground-plane, which may not exist. In short, the logic of such paintings, arranged as they are round a central figure, is subjective. They express a spiritual order of experience.²⁸ Yet, incongruously, they may also include the more naturalistic forms of a previous art.

These apparently incongruous features of Byzantine painting are expressed in a mid-tenth century portrayal of St. Luke (Pl.II). Significantly, this work was executed at the time of the artist-scholar emperor Constantine VII who devoted himself to classical studies, encouraging his artists to use classical models.²⁹ This influence is evident in the toga-like garment which the evangelist wears, but more dramatically in the architectural background.³⁰ The receding lines of the stepped design converge on a central axis that coincides with the figure of Luke himself. Here is a

contradiction that typifies the Byzantine aesthetic: instead of leading into the picture to create pictorial depth the orthogonals are forced back into the picture plane both by a decorative background surface that refuses to allow the eye to travel beyond the doorway; and by fastening on to a foreground figure.

Whatever impression of depth the architecture may provide is further compromised by the rectangular objects in the composition. The table and book, for example, are drawn in reverse perspective so that their orthogonals meet in front of the picture plane, as if seen from behind. One has the eerie sense of being simultaneously in front of and behind the painting. As well as being unsynchronised with their surroundings these objects are further dislocated by having only the most tenuous of connections with a ground-plane. The position of the lectern is not consistent with that of the table, if they are both set on the same horizontal surface, while the evangelist's seat and footstool are similarly at odds. The figure of St. Luke seems curiously detached from his surroundings. He looks out of the picture, instead of at the lectern; he reaches to his table, but without watching what he is doing. Although the body is plastically modelled the posture is awkward and the fall of the drapery, like that of the scroll, stiff.

(iii) Romanesque

Western painting went much further in abandoning recessional techniques. The Romanesque style, which emerged in the later decades of the eleventh century, is characterised by an emphasis

on surface pattern.³¹ Interiors, a horizontal ground-plane and foreshortening are rarely found. In a miniature of 'Christ in the House of Simon the Pharisee' by the Alexis Master in the St. Alban's Psalter (c.1119-1123), the decorative qualities of the style are clear (Pl.III).³² The chevron design of the struts at the bottom of the picture is repeated in the triangular archways above, and inverted in the frontal folds of the table-cloth. The strong diagonal lines of the composition are echoed in the posture of Mary Magdalene and Christ and in the gestures of Christ, Simon and the two figures to his left. A second decorative rhythm is present in the draperies of the main figures. Contours of folds are elaborated and repeated to create a series of patterns and curves which does little to suggest the existence of solid bodies beneath. At the same time, the upper figures are isolated from each other by the partitions of the background design. Any sense of plasticity is further negated by the absence of visible means of foot support.³³ The horizontal dimension has also been abolished from the architectural archways, from the surface of the table and largely, for want of foreshortening, from the faces. As a consequence of this absence of recession, it is difficult to distinguish any vertical frame beyond that defined by the picture-frame.³⁴ Although Mary is nominally in front of the table, and the disciples behind it, all of the forms seem to be pushed forward on to the surface of the picture.³⁵

(iv) Gothic

French Gothic dominated European art in the period immediately prior to the Italian Trecento. The style is generally recognised as receiving its formative impetus from the royal abbey of St.

Denis where Abbot Suger (1082-1152) had built a church that was a treasure-house of architecture, sculpture, stained glass and lapidary work. Some of the inspiration behind Suger's aesthetic can be ascribed to his knowledge of pseudo-Dionysian texts, in which the beauties of divine light are described.³⁶ The prestigious nature of the abbey, and Suger's own influence as counsellor to the king, Louis VII (king 1137-1180) and sometime regent, help to explain the wide and rapid diffusion of Gothic form.³⁷

In the thirteenth century, the patronage of Louis IX (king 1226-1290) and the cultural prestige of Paris were important factors in making the city an international centre of architectural style and of illumination of both secular and religious books.³⁸ The appearance of the Gothic style in manuscript painting has been attributed to a desire to imitate glass painting, and to the shift from monastic to lay workshops. With a diminishing in church patronage and a growth in the number of commissions demanded by court and university, the tendency of the new patrons was to demand a greater number of secular works. The move away from church influence and religious subjects may have enabled artists to accommodate a style not wholly subservient to didacticism but more anthropocentric in intention.³⁹

What Gothic artists did was to liberate Romanesque painting from its insistence on two-dimensional surface patterns.⁴⁰ They achieved this primarily by introducing a distinctive human figure. The Gothic painted figure is like his sculptured counterpart: he is free of his surroundings, represented in three dimensions and with realistic body proportions; he adopts a variety of postures, though still fronting the picture, and seems possessed of human

vitality. This energy, and the dramatic relations he enjoys with other members of the composition, mean that he appears to generate space in his immediate area, a quality sometimes facilitated by architectural frames that have a 'proscenium arch' effect. Clothes fall in accordance with movement, unlike the fluted designs of the earlier period. Foreground space is offset by a background plane that is characteristically made up of small patterns. In front of this there exists a number of other planes, occupied by the frame, the figures, or a rocky or architectural background, all of which may potentially interlock with each other.⁴¹

In the lower register of a miniature from the Breviary of Philip the Fair, painted by the Parisian master Honoré at the end of the thirteenth century, many of these features occur (Pl.IV).⁴² The figures are convincingly modelled and their actions are eloquent even if the facial expressions are wooden. Their drapery falls in accordance with their posture. Care has been taken to convey the relative sizes of David and Goliath and the onlooking king, who by their position in relation to each other are shown as engaged in the drama of the giant's death just at the moment when the stone hits Goliath's forehead. The space existing between these three is integral to them - it has no bearing on the space in which the observer exists - and is built up from four vertical parallel planes. The first is the flat diapered background, giving substance to the forms before it; the second is occupied by the rocky landscape and trees to right and left; the third contains Saul and his soldiers, David (twice) and the dead giant; and the fourth is represented by the frame and by Goliath who stands on it.

Although suggestive of depth, this construction is unnaturalistic because the four planes inter-connect in impossible ways. Saul is both behind the frame and in front of it; Goliath's sword begins in the foremost plane and leads back to beyond the second; David's does likewise. The coherence of the artificial mesh of planes is further upset by the juxtaposition of two scenes - the slaying and beheading of Goliath - which are in fact sequential, belonging in separate times and places. So although the spatial constructs of Gothic painting are innovatory in comparison with Romanesque art, they are restrained and inhibited when compared with Hellenistic art or with the classical elements in Byzantine painting. It was against such restrictions that Trecento artists reacted.

C. ITALY

What fuelled the transformation of Gothic space in Italy was the presence, near at hand, of the means to do so. Such late Ducento artists as Cimabue, Cavallini and Guido da Siena are to be found in active contact with Byzantine art and with classical art in its Hellenistic and early Christian phases.⁴³ The impulse to model spatial form on these naturalistic precursors may be explained by the growth in the number of wealthy bourgeois patrons, stimulating among artists a search for novelty; by the sheer scale of some of the fresco cycles, itself provoking innovation; by the size and location of many of the paintings, which had to achieve a monumentality and spatial orientation integrated with the architectural space of which they formed a part; and by the advent of a religious order begun by St. Francis which popularised the Cistercian emphasis on the humanity of Christ and on the validity of the natural world.⁴⁴

(i) Duccio di Buoninsegna (fl.1278-1318)

The Maestà (1311) of the Sienese painter Duccio exhibits advanced symptoms of a rediscovery of pictorial depth. A panel painting designed as an altarpiece, its programme of pictures is in fact a miniature version of a fresco cycle in which Byzantine heads fuse with Gothic drapery and antique interiors.⁴⁵ Duccio restricted his interiors to the foreshortened frontal setting, that is with one surface parallel to the picture plane and the visible side of the building in recession.⁴⁶ Like this he did not disrupt too violently the unity of the surface pattern. Occasionally, these box-like interiors are coffered, the receding beams meeting in a

central area.⁴⁷ The unified appearance of the sequence is also preserved by the repetition of architectural settings and by ensuring that the light source is matched in separate compositions.⁴⁸

The 'Entry into Jerusalem' (Pl.V) is one of the most adventurous of Duccio's paintings in its use of pictorial depth.⁴⁹ The architectural forms are of the frontal foreshortened type, are well differentiated, and include the polygonal building of a particular townscape. The architecture of the city overlaps and the intervening spaces are occupied by onlookers. The point of view is uniformly placed to the left, roughly level with the head of Christ, except in the case of the foreground doorway, the upper surface of which is hidden, an arrangement which is optically discordant with the view afforded of the top of the city wall. This inconsistency is swept away by the recessional power of the diagonal position of the first two planes. In the foreground a rocky surface and wall provide a coulisse, beyond which Christ and his disciples advance uphill towards the crowd. To the left of the city gate lie two further vertical planes, marked by the trees and the buildings beyond, so that the gate itself functions as fulcrum for the diagonal and horizontal elements in the picture, a design that promotes the impression of entering a hill-top city.

Against the bold recessional design, must be placed more conservative details, especially the treatment of the human forms. These are animated, in various postures, and scaled in relation to distance, but they are conceived en bloc. No figure emerges in isolation, and in the case of the nimbed disciples their

elevation is an artificial device at odds with the elevation of the crowd. Members of the crowd are raised in the picture-plane in accordance with relative distance and their position on the hill; the disciples' heads and haloes are shown because these are important individuals.

(ii) Giotto di Bondone (fl.1301-1337)

Duccio's Florentine contemporary, Giotto, tackled the problem of spatial illusionism differently.⁵⁰ Similarly influenced by classical models,⁵¹ and also concerned to preserve the flat integrity of the picture, he explored two spatially evocative forms eschewed by Duccio: the isolated human figure and obliquely-set architecture. Giotto's figures are solid, sculptural, individual and depicted from a variety of angles. They are placed in dramatic situations and, as the participants in a drama, seem to generate a space that is laden with emotion and tension.⁵²

The effects which such figures produce are integral to the meaning of the picture, but the oblique setting of architectural motifs is potentially more disruptive of the picture surface and the overall harmony of the composition. When a substantial rectangular object is placed with one corner jutting forwards and two visible sides in steep recession it tends to polarise space towards that object and to focus attention on the emphatic vertical line of the forward edge.⁵³ Giotto was aware of this danger and took precautionary measures to conceal the frontal edge, or to reduce the angle at which the rectangular form was set.⁵⁴ By these means he was able to create a coherent spatial

realism, to which contemporaries paid tribute,⁵⁵ while reconciling the conflicting demands of pictorial depth and surface unity.

It is hardly possible within the confines of a few pages to give a full impression of the inventiveness of Giotto's solutions to the problems of spatial form.⁵⁶ His influence over artists of succeeding generations is immeasurable. Some impression of his distinctive qualities can be gained by examining a painting from a major fresco cycle of which he was the unquestionable author.⁵⁷ Between 1304 and 1312-1313 he undertook the decoration of the Arena Chapel at Padua, which he decorated with scenes of the life of Christ.⁵⁸ The paintings are in four registers, and together with their painted frames are angled to be seen from the centre of the Chapel. In this, Giotto demonstrated that the space of his paintings was intended to be coterminous with the space of the material world. He further unified the painted and real worlds by co-ordinating the light source of his compositions with that of the natural light in the Chapel.

Individual compositions at Padua have their own internal unity as well as being related to the larger scheme. The 'Marriage at Cana' (Pl.VI) presents a frontal view of a canopied room with angled sides.⁵⁹ The room is set at a slightly oblique angle with the left-hand side of the canopy rising higher than the right-hand side. In accordance with this, the right sloping wall is more foreshortened than the left, suggesting a point of view about level with Mary's head. All the forms are foreshortened in key with the angle of vision: thus the eye looks down on the mouths of the pitchers and up into the beams below the canopy. The two extreme right and left corners of the

canopy are obliquely set and help to suggest a volume of space beneath. The more aggressive corner of the L-shaped table, also oblique, is masked, while the table on which the pitchers stand, since it lies in the foreground, is shown in a foreshortened frontal position.

The sense of interior space is considerable and relates to the completely containing architectural 'boxes' which Giotto creates in other compositions.⁶⁰ The ease with which the figures appear to move, and the varieties in their posture and gesture, lead the observer to accept the presence of a capacious room, the more so because the chief participants appear to be unself-consciously involved in the miraculous turning of water into wine, with a portly butler about to verify the truth of the miracle. The two averted figures, facing into the space of the room, contribute much to the impression of three-dimensional surroundings. But perhaps the most effective visual cues are provided by the wine jars. Being in the foreground, they are large in relation to the more distant human figures, and this scaling of relative size enables the eye to read the picture in depth.

For all this, the fretwork design of the canopy, the thin decorative band below and the striped frieze introduce a planar, horizontal dimension, especially when the painting is seen at a distance, stressing the existence of the picture surface. This desire to reconcile recessional and flat elements has been seen as a developing characteristic of Giotto's compositions.⁶¹ His pictorial depth, unlike Duccio's, does not admit of inconsistencies, but it is empirical. It is by no means a systematic perspective. Giotto's use of recessional forms is reticent and

controlled; he does not employ them for their own sake but as a means to an end. They are subordinate to the dramatic realisation of his subjects.

(iii) Taddeo Gaddi (fl.1332-1366)

Giotto's striving for compositional harmony was echoed by some of his followers, such as Maso di Banco,⁶² but not by others. The forceful and disintegrating effects of the extreme oblique setting are well illustrated in a version of the 'Presentation of the Virgin' by Taddeo Gaddi (1332-1338) in the Baroncelli Chapel at Santa Croce (Pl.VII).⁶³ The thrusting effect of the frontal corners of the cubic shapes is immediately apparent.⁶⁴ These sharp forward edges create a vertical line in the centre of the composition that is not integrated with the scene: it cuts off two groups of figures on the right from their counterparts on the left. The soaring pillars of the temple and the low angle of vision, level with Mary's head, accentuate the vertical element which contributes much to the sense that the architecture is overpowering, dwarfing the action which it contains and supports. The difficulty of reading the architecture as a coherent construction adds to the oppressive effect. It is not consistently foreshortened and seems to be jerry-built out of separate blocks. The receding lines diverge instead of converging and do not appear to follow any pattern.

The scaling of the figures is also problematic. The similar sizes of the priests and the infant Mary assist the impression of distance between them, but the foreground adult figures seem disproportionate by comparison. And the space between the four

groups of figures is discontinuous. Between the priests, Mary and her brothers and sisters as she turns to wave goodbye there is a 'corridor' of pictorial depth anchored in the mounting stairs and consistent with the observer's point of view. But the three other groups are isolated in various ways: those at the top right have turned their attention away from the main scene and are self-contained; the group at the bottom right are not sufficiently turned inwards to be convincingly focused on the main action; and the figures of Joachim and Anna are transported to a hieratic order with the addition of haloes. The final impression then is one of an ambitious array of visual cues which have not been satisfactorily synchronised and which are detrimental to the dramatic import of the picture. Perhaps because of its striking visual impact, this composition was to prove influential in French painting later in the century.⁶⁵

(iv) Pietro Lorenzetti (fl.1320-1344)

As the oblique setting of buildings provided later artists with food for thought, so too did the representation of interiors. Duccio had created a shallow recessional effect by including receding ceiling-beams,⁶⁶ while Giotto had also opted for a containing 'doll's house' where the participants were framed by open-sided rooms.⁶⁷ Both aspects of interior design were adopted and adapted in the following decades, for instance in a work by Simone Martini, the predella of the altarpiece of 'St. Louis of Toulouse Crowning Robert of Anjou' (1317), where a series of scenes is given a centralised axis of recession.⁶⁸

The idea is developed in an altarpiece of 1342 by another

Sieneſe painter, Pietro Lorenzetti.⁶⁹ Pietro's interest in domestic interiors had earlier been demonstrated in a rendering of 'The Last Supper' as part of a fresco cycle in the Lower Church at Assisi (1322-1327).⁷⁰ The ſcene takes place in a novel polygonal room that is perhaps modelled on a pulpit by Niccolò Piſano. But the painting is remarkable more for its domestic ſide ſcene and claſſical putti than for any fundamental innovation in ſpatial composition.⁷¹

Pietro's 1342 altarpiece, however, representing the 'Birth of the Virgin' (Pl.VIII) is a different matter.⁷² Pietro has cunningly united the vertical ſupports of the frame with the imputed architecture of the room. From theſe frontal columns ſpring the vaults of the three bays that contain the ſcene below. The effect is to diſſolve the picture ſurface, previously defined by the frame, and encourage the eye to look into architectural ſpace. Two rooms are viſible, the right-hand one occupying two bays. A column partially concealing the central figure promotes the impression of ſpaciousneſs: ſhe is ſeen as being behind it, the room as being continuous. This effect is alſo helped by the aſymmetric rendering of the three bays. They are ſeen as if from a point juſt to the left of the right-hand column and the foreshortening of the vaults is conſiſtently maintained. The receding lines of the floor and bedſpread alſo take account of the obſerver's point of view, the chequered patterns here being of conſiderable value in aiding the eſtimation of relative diſtance, of which the ſmall ſquares provide a meaſure.

If the ſpace of the main room is organiſed laterally, that of the ſide-room is deſigned to ſtrike back much further into

depth. A glimpse is provided of soaring ecclesiastical architecture and this sense of larger dimensions beyond lends the foreground scenes an intimacy in which the human figure inhabits a less voluminous, domestic space. Finally, the dominant sense of looking into the personal and private dimensions of a small room is reinforced by the seated figure waiting with Joachim at the extreme left of the composition. He looks out towards the observer as easily as the observer looks in at him, establishing a continuity between the sense of personal space in the real and painted worlds.

(v) Ambrogio Lorenzetti (fl.1319-1347)

The ecclesiastical interior which Pietro implies to the left of his 'Birth of the Virgin' is realised, as it were, by his brother Ambrogio Lorenzetti⁷³ in a panel painting of the same year, the 'Presentation of Christ' (Pl.IX).⁷⁴ Ambrogio does not attempt to identify the architecture of the frame with that of the church where the Presentation takes place. Instead he reverts to the more usual 'doll's house' formula, positioned centrally. The exterior, in which the observer and the frame exist, and the interior, are thus kept separate. But the frontal columns serve a similar purpose to those in Pietro's composition in defining the forward limits of the pictorial space and in suggesting depth beyond: they too overlap some of the participants. To these are added a powerful recessional cue in the form of the floor tiles. These diminish rapidly in relation to their distance (proportional diminution), and are ordered so that the receding lines converge at a single point near the base of the

altar. Ambrogio was to use a similar technique in his 'Annunciation' of 1344.⁷⁵ But his perspective remains empirical, not subject to a single ordering scheme. For the orthogonals of the architecture behind the human figures recede to different vanishing points. There is in fact a series of vanishing points arranged on the same vertical axis, and so following Duccio's vanishing axis principle.

It is clear then that there are two locales in the picture, two spatial registers that are not fully integrated with each other: one space for the foreground, another for the background. It is perhaps significant that the foreground forms should totally mask the area behind them, as if to conceal the transition from one space to the next. And in the relation of the figures to their surroundings there is a further awkwardness. The height of the building seems to have been brought down in the foreground to accommodate the protagonists within a more proportionate space; it is as if a domestic interior has been tacked on to an ecclesiastical one. The convincing representation of people within the massive space of a church had yet to be achieved. But these are quibbles. The overriding impression of Ambrogio's work is of a remarkable interior depth, reaching back for several bays.

In the development of pictorial space, Ambrogio Lorenzetti was the great innovator of the mid-Trecento. He made advances not only in the construction of interiors but also in the depiction of townscapes and landscapes. The two latter aspects of his work are visible in a single composition, the Allegory of Good Government, a fresco painted in the Palazzo Pubblico at

Siena in 1338-1339.⁷⁶ The detail (Pl.X) shows a central portion of the town. The group of dancing figures is the core of the entire painting. Dancing and singing, they move and interweave in a pattern of harmonious relationships that suggests the ideal of good government. In terms of spatial composition, also, they are the dynamic of the work, claiming for themselves by frontal, profile and averted postures the central foreground space. They act like a centrifugal force on the rest of the human and architectural forms. Movement is predominantly away from them. Figures ride out towards left and right and diminish in size in proportion to their distance from the dancers. This is true both of figures set deeper in the picture and of those in the same lateral plane. The buildings too recede to right and left, as if scanned from the central place occupied by the dancers.

Ambrogio's arrangement creates a sensible passage of space marked by the road climbing into the city. Introducing a new formula into the oblique arrangement of buildings, he has freed space from being centred on mass. Now it occupies the gaps between.⁷⁷ And the impression of a city of free-standing architecture is furthered by the individual characteristics conferred on each edifice. The buildings, stacked as on the Siena hillside, assert themselves. But there is unity in diversity, a fact stressed by the repeated horizontal lines. Last but not least, the light which strikes the receding faces of the buildings is generated from the harmonious centre of the painting, in contrast to the light falling on this work's counterpart, The Allegory of Bad Government, where the light falls as if from its natural source in the room.⁷⁸

To the right of the city lies the Sienese countryside. In

its extensiveness and naturalness this landscape is far removed from the papier mâché stage sets of earlier Trecento painting.⁷⁹ In addition to figures and buildings, trees and fields are scaled down in relation to their distance from the city. The denser texture of the more distant vineyards is an added depth cue, as are the diminishing roads which wind their way across bridges, between hills, through towns and villages. There is a continuous ground plane from the foreground to all but the most distant hills, the hills rising in the picture plane as they become more distant. The transition from the heights of the city to the plain below is effected by a sophisticated overlapping device outside the gate, where figures come and go in opposite directions (Pl.XI). Beyond the dark, steep downward curving edge of the hill lies a narrow, curving road, occupied by a small figure, and less detailed fields. The abrupt change in scale and detail prompts the eye to infer the existence of a rapid drop, as at a cliff edge, in the intervening terrain. In short, Ambrogio has imitated a number of phenomena which account for the perception of depth in the physical world.

(vi) Mid-Century

The advances made by the Lorenzetti in creating the illusion of three-dimensional space, a movement begun by Duccio and Giotto, came to an abrupt end in the mid-fourteenth century. Financial crisis in the Florentine banking-houses, political upheaval, famine and above all the Black Death - from which artists did not escape - brought in their wake a religious revival founded in a mood of guilt and penitence.⁸⁰ The disruption of social,

intellectual and spiritual structures had wide-reaching artistic consequences for the next thirty years. Accelerated by the emergence of new, traditionally minded patrons, a reaction set in. Perspective devices were shunned and there was a corresponding loss in individualism and plasticity in the portrayal of human figures. Artists drew inspiration from the more hieratic, two-dimensional compositions of the Ducento. The emphasis now fell on expressing ecclesiastical authority, the imminence of divine judgement and the reality of the supernatural world.⁸¹ Artistic representation of perceptual truth lingered on in isolated instances, but this was no more than the mechanical repetition of once vibrant principles of pictorial design.⁸² Only in manuscript illuminations from Bologna and Lombardy do the spatial devices of the Trecento masters continue to live an authentic life.⁸³ It was not until the end of the century that Altichiero in Padua took up the cudgels to continue the conquest of the unexplored tracts of pictorial space.⁸⁴

D. FRANCE

French and Franco-Flemish artists enjoyed intermittent contact with Italian art throughout the fourteenth century. This is evident from changes in style and iconography as well as from documentary records. It is as well to remember that the impact of Trecento painting was European in scale, although its effects took a particular course in individual countries. In the case of France, three factors were of especial importance in channelling Italian influences towards responsive recipients. First, Italian artists were practising in France from the early years of the fourteenth century.⁸⁵ The influx of foreign painters increased with the establishment of the papal curia at Avignon and the demands of decorative schemes in the palace, begun in 1336. Notable among Italian artists at Avignon were Simone Martini and Matteo Giovannetti,⁸⁶ but the importance of Avignon as a centre for the dissemination of artistic ideas should not be overestimated.⁸⁷ Secondly, French artists travelled to Italy and there saw at first hand the striking developments which had been taking place.⁸⁸ Finally, political marriages and alliances between the two countries provided another cultural network which facilitated the transmission of artistic influences.⁸⁹

French artists did not adopt Italian ideas wholesale. A process of "selective assimilation" took place in which Italian subjects, forms and styles were blended with the vigorous native Gothic tradition, as represented by Honoré.⁹⁰ Among the Italian developments accepted into the French repertoire was the use of deep pictorial space.⁹¹ Here, French artists faced particular

problems. Italian painting was undertaken on a larger scale than theirs. It tended to be monumental in conception, executed in fresco or on a panel. French painters had therefore to scale down forms intended to achieve their effect within a large setting, for the medium of the French painter was the manuscript page. And here a further difficulty emerged. If recessional effects were to be used in a miniature, then they had to be reconciled with the strong two-dimensional emphasis of the script.⁹²

(i) Jean Pucelle (fl.1319-1353)

These difficulties are resolved in a miniature of the 'Annunciation' (Pl.XII) in the Hours of Jeanne d'Evreux (1325-1328) by Jean Pucelle. Pucelle had visited Italy and became acquainted with Trecento spatial devices.⁹³ This scene, set in "the first coherent perspective interior in northern art",⁹⁴ is modelled on two Annunciation scenes by Duccio which are here fused together in one composition.⁹⁵ Pucelle learnt his lessons well. The ceiling, walls and floor in his 'doll's house' construction all recede in accordance with the vanishing axis principle used by Duccio. The capaciousness of the interior in which Mary stands is given further emphasis by the use of lighter tones than those used in the cubicle to the left: it appears to be illuminated from within. The overlapping of the angel by a frontal architectural column establishes the containing capacity of the cubicle, while the spaces of the two 'rooms' are welded together by the exchanged glances of woman and angel. Their figures are substantial, modelled in monochrome, worthy occupants of so

three-dimensional a setting. And Pucelle uses a third figure, the caryatid at bottom right, to ease the transition to another dimension, the linear space occupied by the script below. The winged drollerie seems at once to share in the action above, and to grow out of the calligraphy.⁹⁶ The success of Pucelle's miniature is indicated by the number of times it was imitated.⁹⁷ The artist himself, however, did not extensively develop such Italianate spatial devices as those used in this 'Annunciation'.⁹⁸

(ii) Jean Bondol (fl.1368-1381)

The formative effect of Italian art is not evident again until the 1370's in the work of Jean Bondol, born in Bruges and active in Paris.⁹⁹ The Flemish origin of painters working in Paris was to become a familiar feature of French art in the late fourteenth and early fifteenth centuries. According to Panofsky, these Franco-Flemish painters brought to their adopted country a "heritage of optical sensibility"¹⁰⁰ which found expression in the depiction of volume, space, light and colour, texture, concrete reality and the details of landscape and interior.

Some of these characteristics appear in Bondol's miniature of 1371, showing Jean de Vaudetar presenting a Bible to Charles V (Pl.XIII).¹⁰¹ The canopy, seat, book and figures are all foreshortened as if seen from the centre of the picture. This point of vision coincides with the point of intersection of the receding foreground tiles. The receding lines of the tiles visible 'off-stage' to right and left converge at a higher vanishing point on the central axis.¹⁰² Although the tiles do not diminish correctly in proportion to distance, they provide a powerful recessional cue, establishing a deep continuous ground-

plane. This effect of depth, as well as that provided by foreshortening, is enhanced by the flat repetitive pattern of fleurs-de-lys forming the background. The central figures themselves are remarkable for their modelling, for the naturalistic fall of the King's gown, and by the degree of portraiture both of monarch and court official. One has the impression that this is a unique occasion, captured in a photographic moment.

Of considerable help to the impression of realistic space is the obliquely set chair, adequately supported by the extensive floor. The chair does not thrust forward aggressively, as many obliquely set objects do, partly because of its curved lines and partly because it is kept firmly behind the picture frame which overlaps it at the back. The frame also cuts off part of the canopy and the leg of Vaudetar. The painter has here adopted, along with the other Italian motifs of the recessional tiled floor and obliquely set chair, the 'interior by implication' developed by Ambrogio Lorenzetti.¹⁰³ It is as if the onlooker is provided with a framed segment of a much larger space. Again like Italian models, the composition has the appearance of a panel painting rather than a book illustration. It has become independent of the planar demands of the page and there is only the most tentative acknowledgement of the surface in the decorative flowers which adorn the edge of the frame.

(iii) The 'Parement' Master (fl.1370-1385)

The successful assimilation and adaptation of Italian forms of space depended a good deal on the temperaments of the artists

concerned. The sculptor André Beauneveu (fl.1363-1390), when painting a series of prophets and apostles (1384-1387) in a Psalter for Jean, duc de Berry, placed them on thrones drawn in striking but mismanaged perspective.¹⁰⁴ The master of the Parement de Narbonne, however, drawing his inspiration from Jean Pucelle, introduced into his work of 1370-1375 a number of items freshly encountered in Italian art: organic solidity and energetic expressiveness in the portrayal of figures, some of which are averted; an emotional and dramatic atmosphere; and a spatial coherence both within and between separate scenes.¹⁰⁵

Meiss has identified the early miniatures of the Très Belles Heures de Notre Dame with the work of the Parement master and his workshop. In these paintings of 1382-1385, space is used with even greater mastery.¹⁰⁶ In the 'Flagellation' (Pl.XIV) Bondol's 'interior by implication' becomes explicit.¹⁰⁷ The orthogonals of the architecture, of the foreshortened walls, of the chequered patterns on floor and ceiling, all recede to a central axis masked by the foreground pillar, the base of which helps the artist overcome the embarrassment of a central line of tiles in too sharp a recession. The receding pattern of the ceiling is now added to that of the floor as a space index, both serving to further the sense that the action is entirely contained within this frontal room.¹⁰⁸ And there are hints of further adjoining interiors, entered through the dark doorways to right and left.¹⁰⁹ The lively if vicious action centring on the figure of Christ, particularly that of the averted negro,¹¹⁰ knits together the cubic dimensions of the composition.

The depth of the miniature is in marked contrast to the

linear flow of the script beneath and here the Parement master has reacted to the different spaces not by subtle transitions in the manner of Pucelle, but by accentuating their differences. The frame itself is drawn in perspective, announcing the three-dimensional world of the 'Flagellation'. In emphatically dividing surface from depth the frame invites the eye to peer into the composition as if a hole has been cut in the parchment.¹¹¹

In the work of the Parement master there is an acceleration of interest in Italianate space, but also a growing tendency towards independent innovation. The spirit and momentum of his attitude is maintained in paintings by other artists who explore further the particular devices and forms he espoused, notably the repoussoir (overlapping frontal plane just inside the frame), the organic figure set in a coherent three-dimensional setting, the perspective landscape and the effects of light.¹¹² Thus the Passion Master (fl. c. 1355-c. 1385) of the Petites Heures of the Duke de Berry refines 'vanishing axis' perspective so that the orthogonals of his interiors recede to one or two vanishing-points,¹¹³ while the generally conservative Pseudo-Jacquemart, active after 1382, exploits the spaces between overlapping landscape contours and introduces shadows into an interior composition.¹¹⁴

(iv) Jacquemart de Hesdin (c. 1365-c. 1413)

It is in the work of the Franco-Flemish painter Jacquemart de Hesdin that spatial inventiveness reaches a new intensity. He admits into French art the full perspective repertoire of Duccio, Simone Martini, the Lorenzetti and Altichiero.¹¹⁵ At the same time Italian art does not overwhelm him. It is naturalised and

a way is prepared for further progress in spatial expertise. Although Jacquemart's early work in the Petites Heures reveals a well developed interest in representing the three-dimensional world,¹¹⁶ it is in his miniatures for the Brussels Hours (c.1390-1395) that the "dialogue with Trecento painting"¹¹⁷ is at its most eloquent. Particularly remarkable are the forceful oblique settings of large architectural forms,¹¹⁸ the capacious interiors,¹¹⁹ and the landscapes, modelled on Lorenzettian principles, which project a long way back into the pictures.¹²⁰

Jacquemart's 'Flight into Egypt' (Pl.XV) is typical of these miniatures in having the appearance of a panel painting.¹²¹ The decorative quatrefoils of the margin just overlap the frame and so initiate a series of recessional cues.¹²² Within the frame the flight of Mary and Joseph is represented in what appears to be a segment of a much larger space, as if it is the partial view provided through a window. This is the exterior version of the 'interior by implication', discussed earlier.¹²³ The cutting off effect of the frame is repeated by the rocky repoussoir at the bottom right of the picture which overlaps the shoe of Joseph¹²⁴ and which, contrasted against the darker hues of the gap into which he walks, helps to establish the existence of a considerable gully cutting through the solid rock. The diagonal arrangement of this cleft, marking the path along which Mary and Joseph move, suggests the existence of extensive space beyond the picture plane. Mary and Joseph are moving into the body of the picture, reinforcing as they do the presence of homogeneous depth by exchanging glances.

The rock formations of this landscape are immeasurably more

naturalistic than those found previously in French painting, and the open terrain is distinguished by the extent of its continuity.¹²⁵ It reaches back expansively to the water's edge with no abrupt breaks. There, surface continuity is maintained by the water and the islands. The transition from near to far is aided by a winding road, a formula favoured by Ambrogio Lorenzetti and now adopted by Jacquemart.¹²⁶ The positions of the more distant parts of the landscape are optically consistent, being elevated progressively in the picture plane. The comparative sizes of near and distant forms add to the impression of depth, but here the dimensions of the trees are disconcerting. They are dwarfed by the human figures and do not diminish in proportion to distance. This fault is redeemed by the scaling of the boats which become progressively smaller as they approach the horizon, where the sea meets a blue sky instead of the more traditional patterned background.

(v) The Boucicaut Master (fl. c. 1405-1417)

True autonomy from Italian influence was attained at the turn of the century by the painter who has become known as the Boucicaut master for his execution of miniatures in the Hours of the Maréchal de Boucicaut of c. 1405.¹²⁷ Into this book's illuminations were introduced three major advances in the creation of pictorial depth, advances which show how much the Boucicaut master knew and controlled the capabilities of his own medium. The foreground of the 'Visitation' is a landscape such as might be found in the Brussels Hours, but behind stretches a "novel interpretation of the visual world".¹²⁸ Light reflects on the water and catches the prominent contours of the

countryside. The sky, in key with actuality, lightens nearer the horizon, and it contains wisps of clouds. The colours of more distant objects weaken with distance and the definition of their edges lessens. The painting of interiors is no less adventurous. In the miniature of 'St. Jerome',¹²⁹ an 'interior by implication' is fitted with a back wall and in the 'Vigils of the Dead' a deep church interior is represented beyond what Panofsky has called a 'diaphragm',¹³⁰ an archway just inside the frame that contributes to the impression of space.

These three types of innovation combine in a painting contained in the Dialogues de Pierre Salmon of 1411-1412, in which Pierre is portrayed with Charles VI (Pl. XVI).¹³¹ The room is seen as if from the right-hand side and a 'diaphragm' of architectural design intervenes between the frame and the scene beyond, as if it might be possible to step into the picture through the span of the bay. In defining the picture surface the 'diaphragm', like a sophisticated repoussoir, pushes back the forms appearing behind it while making it appear that the space which contains them extends, out of sight, to right and left. The device thus helps to imply an interior more capacious than that actually shown, but unlike earlier 'interiors by implication' there are now specific boundaries. The rear vertical plane is literally the wall of the room, a room in which the volumes of the bed and canopy assert themselves as having an optical value equivalent to, or greater than, the human figures. Even the rear wall is pierced, audaciously, by a window through which there is visible not a solid decorative surface but the dimensionless space of the sky rendered, according to the rules of aerial perspective,

progressively lighter nearer the horizon. The light shed through the window catches the pleats of a hanging while leaving the window wall in relative darkness. Its passage into the room marks the interpenetration of interior and exterior space.

(vi) Paul de Limbourg (d.1416)

The culmination of these trends is found in the work of the Boucicaut master's contemporaries, the Limbourg brothers, active in Paris from 1396 until their deaths in 1416.¹³² Meiss has identified their separate artistic personalities: in matters of pictorial depth, Paul was the most experimental, Jean the most conservative and Herman the least skilful.¹³³ Paul's characteristics begin to emerge in the early miniatures commissioned by Philippe le Hardi for a Bible moralisée and begun in 1402.¹³⁴ His "remarkable spatial ambitions"¹³⁵ show that he had studied Trecento painting, that he had an eye for lapidary luminosity, and that he and his brothers probably knew Broederlam's striking panels on the birth of Christ.¹³⁶

The Belles Heures, undertaken circa 1403-1408 when the Duke de Berry had become the brothers' patron, reveal Paul's interest in volume, new points of view for the onlooker, novel foreshortenings and postures of human figures, relationships between script and print and interior perspective.¹³⁷ It is in the Très Riches Heures, which really provides an embarras de richesses in spatial techniques, that Paul reaches maturity. Begun for the Duke in 1411 or 1412 and left incomplete in 1416, the Limbourg brothers introduced into the manuscript completely new pictorial subjects, a remarkable degree of naturalism, a

sense of antique sculptural forms, a close attention to details of dress and occupation both of rich and poor, and above all a pervasive luminosity that appears in conjunction with remarkable landscapes that may be blanketed in sparkling snow or shrouded in darkness.¹³⁸

It was Paul de Limbourg's particular fate to unite the salient and progressive features of Italian and Flemish art, providing as he did so models for such later luminaries as Jan van Eyck.¹³⁹ The peak of his achievement is represented by the October miniature from the Très Riches Heures, painted in the last years of his life (Pl. XVII). Some of the detail has been retouched, but none of this interferes with the spatial design. The first impression, and one given by many of the full-page paintings, is that it is more like a free-standing and substantial panel than a manuscript miniature.¹⁴⁰ Marginal decoration, anything that might draw attention to the planar demands of the parchment surface, has been abolished with the exception of the calendar script above, which is so fragmented as to offer little impediment to the recessional effects beneath. If anything, it provides a productive foil for the graded blue depth of the sky.

The onlooker seems to share his ground-plane with that of the peasants, whom he observes from a slightly elevated position level with the lower portion of the right-hand tower of the chateau wall. The battlements are foreshortened as if seen from such a point, although there is a minor inconsistency in the drawing of the right-hand set of steps down to the river. The beginnings of the higher imaginary ground are marked by a

grassy incline at the bottom left of the picture. This has the further advantage of providing a repoussoir, giving added depth to the scene beyond, where the land stretches back without interruption or abrupt breaks until it reaches the river and the limiting rise of the wall.¹⁴¹

The eye is led back into depth by a line of central forms scaled to give an impression of distance: the seed sack, the harrow, the scarecrow and the central wall-tower. Other visual cues promote the sense of space. The lines marking the furrows grow closer together as they recede; the texture of the earth is more coarse in the foreground; the trees as well as the human beings diminish in proportion to distance; and the detail shown on the more distant forms, such as the trees, is less distinct than on nearer ones. At the top edge of the castle wall there is a powerful effect of further space, separating it from the château, itself represented obliquely and so occupying a maximum of volume.¹⁴² If anything, the definition of the castle is too sharp for the distance at which it is placed.

Colour, too, is modulated to take account of distance. The blue and red of the peasants' tunics are bright and emphatic, but these colours are toned down on the scarecrow and a riverside figure. Similarly, the horse's covering and the light tones of the wall and castle are subdued in relation to the white bonnet and apron of the nearer figure. These colours are illuminated by a source of light that strikes from the left. The right hand face of the chateau is in shadow and shadows are cast by all of the human figures, by the horse and even by the birds.¹⁴³ The light has further effects. It reflects from the edges of

the furrows, from stones, from the twine and strips of fabric set up to scare the birds, while highlights are painted on prominent parts of the nearer trees and on forward edges of the wall and chateau. Beyond the building, a deep blue sky gradually grows lighter nearer the horizon. In short, Paul has coherently represented a naturalistic light falling on a naturalistic, that is a three-dimensional world.¹⁴⁴

In the October miniature, space is no longer the by-product of human forms and architectural mass. It has become a self-existent environment which things occupy. In Meiss's terms, Paul has created a window through which the onlooker peers at a segment of space like his own, across which figures move to pass out of view, leaving footprints in the earth. He has created this stereometric world by orchestrating a large number of visual cues taken both from his artistic predecessors and from his own knowledge of visual reality.

E. ENGLAND

English painting in the fourteenth century offers little to compare with developments in the representation of space as they occurred in Italy and France. Instead, there is a pronounced tendency to continue reproducing the traditional Gothic constructs which create a modicum of recession with a few simple techniques. This conservative attitude towards pictorial composition is disrupted by sporadic incursions of spatial design based on continental models,¹⁴⁵ evidence which reveals some contact with Italian, French and classical works.¹⁴⁶

The channels through which such influences travelled are speculative but they are indicated in several features of the cultural background. Diplomatic missions took Englishmen to Italy and France - as the case of Chaucer illustrates - and Italians and Frenchmen to England.¹⁴⁷ English craftsmen worked in Avignon at the time of the papal curia (1309-1378).¹⁴⁸ But perhaps royal patronage had the greatest effect. Edward II (1307-1327) had accumulated by the end of his reign a collection of magnificent books.¹⁴⁹ In 1328, the future Edward III married Philippa of Hainault, and it is likely that the royal bride brought with her illuminators and painters who practised continental styles. And Richard II's marriage to Anne of Bohemia in 1382 furthered the cosmopolitanism that was becoming characteristic of European courts.¹⁵⁰ In spite of these factors, the more progressive aspects of continental art did not take root in England until the end of the century, when the so-called International style overcame insular resistance.

(i) The Ramsey Psalter (before 1310)

From a European standpoint, English uses of pictorial depth in the fourteenth century are but pale reflections of illustrious continental practices. To be properly appraised, however, English experiments must be placed in relation to the dominant native spatial constructs which are not unlike those of Honoré in France and as distinctively Gothic.¹⁵¹ The pictorial depth of English Gothic painting has been described by McCorkel as "spatial materialism".¹⁵² Space is generated by objects and figures, but these separate spaces are not co-ordinated. Instead, they are organised in membranes or vertical planes placed parallel to the picture surface. Neither do these planes offer a coherent spatial ambience. They interlock in ambiguous ways and prevent the reading of the picture as a coherent or autonomous locale.

Illuminators at the beginning of the century may make minor adjustments to these basic principles of spatial design but practices remain typical. For instance, the painter of a miniature of 'Christ before the Doctors' in the Ramsey Psalter (before 1310)¹⁵³ which belongs to an important group of illuminated manuscripts centring on the Peterborough Psalter in Brussels,¹⁵⁴ adopts a "playful" and almost self-conscious attitude towards his frame and the area it defines (Pl.XVIII).¹⁵⁵ The picture-plane is defined by the frame. Its lower member provides a ground line - there is no ground-plane - and along this are ranged three figures. The head of the doctor at the left overlaps the frame but lower down the frame overlaps him in an optically inconsistent fashion. Behind the first plane, located by the front three doctors, others sit and listen. The

simple overlapping device supplies a modicum of depth and it is repeated when the second row of figures in its turn overlaps the seated figure of Christ.

Such visual cues urge the eye to read Christ as the most distant figure of all, but he is too elevated in the picture plane for this, being effectively brought forward at the point where his head overlaps the top part of the frame, and where his foot is placed in front of the chin of one of the listeners. Again, first impressions are confounded and a 'distant' figure rebounds on to the picture surface, aided in this instance by the reflective gold background and by the position of the seat, frontally set with an upturned surface. The postures of the various figures also act against an impression of depth. They are all represented in half- or three-quarter profile, their eyes straining towards Christ. Christ himself is gazing at his parents but they are not placed in such a position that eye contact between him and them is possible. Suddenly, the edge of the frame has become a corner or the edge of a door round which Mary and Joseph peer, like a stage property that changes its nature according to the dramatic situation.

(ii) The Douai Psalter (after 1322)

At the end of the first quarter of the fourteenth century, major modifications to the Gothic style of space appear in four manuscripts connected with the eastern counties:¹⁵⁶ the Gorleston,¹⁵⁷ St. Omer,¹⁵⁸ Ormesby¹⁵⁹ and Douai Psalters.¹⁶⁰ The last of these, dating from after 1322, is now frequently referred to as destroyed, but an examination of the surviving fragments showed that this is far from being the case.¹⁶¹ Although badly affected by damp, 208 folios remain out of a total of 223. The folios are disbound and,

apart from one pair of conjugates, corrosion at the edges has made them separate into individual leaves. The parchment is discoloured and the ink has offset on to facing pages. Most of the colour has either disappeared or been oxidised. In spite of its bad condition, the decorative and pictorial content of the Douai Psalter remains impressive, fully justifying the praise of Cockerell, who saw the manuscript intact.¹⁶² The prince of the group to which it belongs, the Douai Psalter is both "the earliest manuscript fully in the Italianate style"¹⁶³ and "the first East Anglian psalter to include full-page miniatures as an integral part of the pictorial programme".¹⁶⁴

The averted figure, so suggestive of pictorial depth, recurs in an offset initial Q of the Douai Psalter (Pl.XIX). It is probably a representation of 'Doeg and the Priests', inserted in the first letter of Psalms, 51: Quid gloriaris. Doeg, with his sword held ready to smite the priests, is represented in an energetic, not to say contorted position as he enters the city of the priests, prepared to slay its inhabitants.¹⁶⁵ All that can be seen of the city is its outline, transferred from the opposite page. Enough is visible to show that the original work must have been a remarkable townscape for its place and time. There are three main overlapping structures, seen from a single point of view. Doeg approaches the first of these, the outer wall, beyond which lies an inner wall bisected by a gateway. Within the city is clearly visible a church, represented in a foreshortened frontal setting.

Confirmation of the Douai draughtsman's ability to create space through architectural volume is forthcoming from another scene at

the bottom of the Beatus page, showing David bringing up the ark of the Lord (Pl.XX).¹⁶⁶ The ark is destined for a city where a cluster of buildings with separate identities is shown. These edifices are drawn in versions of the foreshortened frontal setting. The largest houses little more than a large archway, but another includes a hexagonal tower, and is placed behind a circling wall. In the distance two more ecclesiastical buildings rise, one with an obliquely set tower. In the doorways, a bishop waits with his priests. These are not interiors, but the design suggests that the buildings have a containing capacity.¹⁶⁷

(iii) The Gorleston Psalter 'Crucifixion' (c.1320)

The remarkable facial modelling that is characteristic of this group of manuscripts occurs in a script decoration in the Douai Psalter, showing the head of a bald man with a furrowed brow and bushy beard, drawn in three-quarter profile (Pl.XXI). A comparable physiognomy is found in one of the portrait heads placed in the border medallions of the Gorleston Psalter 'Crucifixion' of c.1320 (Pl.XXII).¹⁶⁸ The Gorleston 'Crucifixion' (Pl.XXIII) is itself one of the key documents in the early phase of English Italianism. The dramatic and expressive postures of the figures have been likened to those found in Sieneese paintings of the Trecento.¹⁶⁹ Especially striking is the fissured, rocky ground plane which provides a solid support and recedes into depth. It is cut off at right and left, almost becoming an 'exterior by implication'. Space is still conceived as a series of overlapping planes - the four planes are marked by the frame, the

front edge of the rock, the figures and the diapered gold background - but there is no optical confusion between them. The slightly averted kneeling figure of Mary Magdalene helps to further the spatial harmony, while her embracing of the cross suggests its solidity. In this respect, the 'Crucifixion' of the Douai Psalter¹⁷⁰ is more conservative. There is no Magdalene, no ground plane, and the cross moves ambiguously forward to overlap the frame.¹⁷¹

(iv) The St. Omer Psalter (c.1330)

No less remarkable than the Gorleston 'Crucifixion' for its use of recessionary cues is an historiated initial representing the 'Last Judgement' in the St. Omer Psalter of c.1330 (Pl.XXIV).¹⁷² Some twenty naked figures are shown in various stages of emerging from their graves. A receding ground-plane is embedded with these tombs and bodies, which overlap each other systematically, rising in the picture-plane and becoming darker as they grow more distant. Arching over the earth is a rainbow on which Christ sits in judgement. This is kept firmly to the back of the composition by the trumpets of the two angels which overlap it, they in turn being cut off by the framing initial D. Thus the integrity of the separate planes of the composition is again preserved. There is a somewhat unsatisfactory relationship between the figures on the ground and their judge. With one exception, they are presented in three-quarter profile and are facially directed away from Christ, although the postures of their bodies indicate a desire to see him. The spatial uneasiness is rectified in the case of the one individual, directly below Christ, who is represented from the back, looking up at the scene above.

(v) The Psalter of Robert de Lisle (before 1339)

The degree to which an English illuminator of the 1330's could create corporeality in human figures is demonstrated in a version of the 'Ascension' (before 1339) from the Psalter of Robert de Lisle (Pl. XXV).¹⁷³ The style of painting is not related to any particular group but Sandler notes that the "monumentality of figure representation and use of modeling" has affinities with East Anglian manuscripts.¹⁷⁴ The painter's relatively advanced spatial techniques could reflect a study of Pucelle or of Italian art.¹⁷⁵ The frame of the 'Ascension', the cusps of which partially obscure some of the figures, is responsible for promoting the effect of depth within the scene; so too is the ground-plane and the vertical rear plane. Together they form a box-like space something like an interior. Sandwiched between the frame and the patterned background is an overlapping group of ten animated figures. The variety of gesture, marked by the pronounced hands, indicates that they need space in which to move. A potential for movement is also expressed through the varied postures of the bodies, which appear to displace real volume as well as generate space in their immediate area. The impression of corporeality is gained through the disposition of the draperies, subtly modelled and shaded, which fall as if from substantial human forms.

(vi) The Paintings of St. Stephen's Chapel (1350-1351)

Another style in Arundel 83 has been linked with Court painting.¹⁷⁶ The connection indicates one primary route, royal patronage, through which continental influences might have been transmitted. The elaborate programme of paintings carried out in St. Stephen's

Chapel, Westminster, in 1350-1351 demonstrates how responsive to European developments English painting could be. The work was supervised by Master Hugh of St. Albans. Most of the painters were English,¹⁷⁷ although the records indicate the presence of two Italians and two Flemings.¹⁷⁸ Master Hugh was himself well travelled and his will records that he possessed an Italian painting.¹⁷⁹ The murals in St Stephen's were rediscovered c.1795 and an early observer noted that they were arranged with the higher registers enlarged to compensate for the diminishing effects of distance.¹⁸⁰ Soon afterwards, the paintings were largely destroyed when the chapel was refitted and now only fragments of the original work remain in the British Museum.¹⁸¹ These still reveal that relatively advanced recessional effects were the order of the day. A scene showing the 'Destruction of Job's Children' includes painted architectural columns interposed between onlooker and composition; and an obliquely set building, seen from a low viewpoint, appears in the 'Messengers of Misfortune'.¹⁸²

Drawings made before the destruction of the paintings show that the spatial scheme was more elaborate than the surviving fragments suggest, that

... there was throughout the entire scheme a conscious striving towards complete realization of a new system in pictorial representation.

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Writing in 1795, Englefield recorded his impressions of perspective devices used in the chapel, some of which he considered inept, but not all.¹⁸⁴ For instance, he noted in the case of the 'Destruction of Job's Children' that

... the perspective of this porch is much better than is usually seen in the works of this period, and evinces a degree of acquaintance with the principles of that art far beyond its first elements ...

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A copy made by Richard Smirke of one section of the pictorial scheme endorses these judgements, even allowing for any exaggerations that Smirke himself may have made. In the upper register, showing the 'Adoration of the Magi' (Pl. XXVI)¹⁸⁶ the Virgin sits on a capacious and obliquely set throne placed well back from the picture surface. Her drapery falls in realistic folds. Further forward, a magus kneels in averted posture, his body leading into the composition and towards the throne, so uniting the two main spatial zones. Spatial integration is aided by the tiles covering the ground plane, which diminish with distance, those to the right of Mary obeying a system of convergence. The same is true of all of the ground planes in the lower scenes, where converging architectural orthogonals strengthen the recessional effect. The kneeling figures are St. George, Edward III, and the king's sons. They are all placed within convincing vaulted interiors, each room seen from its own central point. In the case of the extreme right interior the gesture of St. George, overlapped as it is by the frontal column, is additionally productive of depth.

(vii) The Egerton 'Genesis' and Allied Manuscripts (c.1350-c.1375)

Spatial interests are maintained in the third quarter of the fourteenth century in the work of the Egerton master, who was responsible for illuminations centring on a pictorial Genesis.¹⁸⁷ The illustrations for the Egerton Genesis appear to have been based on a mural cycle of classical derivation.¹⁸⁸ From such a source the Egerton master borrowed such spatial techniques as exaggerated foreshortening, the perspective rendering of crowded forms and the flat projection of three-dimensional objects. With these he mixed

a repertoire of more illusionistic techniques derived from a deep knowledge of Italian Trecento art. This is evident in the solidity of the figures, repoussoir effects, averted postures, lost profiles and overlappings.¹⁸⁹

Pächt reserves particular praise for a scene representing 'Joseph and his Brothers' (Pl. XXVII).¹⁹⁰ It depicts the occasion on which Joseph's brothers visited him in Egypt to beg for food. They do not recognise their brother, who is now Pharaoh's steward, nor does he reveal himself. Opposite the visitors, who sit close together on a narrow bench, four Egyptians, careless of the famine elsewhere, eat and drink with absorbed gusto and with indifference to the needs of the foreign visitors. At the high table, Joseph behaves inscrutably. The spatial arrangement is here used as a vehicle for psychological tension. The design mirrors one by Giotto,¹⁹¹ and although the English illuminator commits blunders in the drawing of the tables it is remarkable how much space is brought into existence. There is a single point of view for the figures if not for the haphazard tables. The overlapping profiles of the brothers become gradually more visible while their size diminishes, and the pleats on their drapery disappear as if to suggest diagonal recession, a cue negated by the frontal bench. Their arrangement in an averted position just behind the frame creates considerable depth. Also productive in this respect are the animated postures of Joseph and the Egyptians and their individualised foreshortenings of face. The upturned surfaces of the tables are not optically feasible and must be explained on subjective grounds: the artist wished to show the plenty which Egypt enjoyed while the brothers of Joseph starved.

There is a similar and more unified composition, representing the 'Last Supper', also attributed to the Egerton master, in the M.R. James Memorial Psalter¹⁹² (Pl.XXVIII). Here, the design is also used in conjunction with a moment of crisis: the offer of the sop to Judas in recognition of his betrayal. The attention of the figures clustered in a variety of frontal and averted postures round the table focuses on this act. Further depth cues are added in the forms of an overlapping frontal column on either side of which the action is visible; and of a frame which cuts off the scene at right and left as if to imply the existence of further space that is out of sight.¹⁹³ The formula is repeated for the 'Ascension' and 'Pentecost' miniatures¹⁹⁴ where a group of standing disciples, represented 'in the round', is seen from a slightly elevated viewpoint.

The implication of the distorted tables in 'Joseph Feasting his Brothers' is that the Egerton master had not mastered the foreshortening of solid objects. That this is not the case is clear from a Genesis drawing like 'Abram's Shepherds Building the Temple at Mamre' (Pl.XXIX).¹⁹⁵ The temple takes the shape of a foreshortened frontal canopy, although the rear pillar is extended too far. It is surmounted by miniature pinnacled buildings and faced on each side by ogival arches. Within, the vaulting is visible. What the Egerton master has in fact constructed is an interior not unlike those found in the wall paintings of St. Stephen's.¹⁹⁶ The principles of construction are much the same. In the Egerton version the sense of contained volume is helped by the masons who work busily on the fabric, penetrating as they work the space defined by the canopy.

The models for the averted and foreshortened postures of the carvers are Italian.¹⁹⁷ Like their Giottesque counterparts, the figures of the Egerton master are massy and solid. The female figure to the left of the canopy is a particularly good example of these qualities.¹⁹⁸ But the English figures are created according to different principles. Whereas Giotto uses colour and modelling to denote corporeity, the Egerton master uses line to portray the "silhouettes of a stereometric world".¹⁹⁹ The matter is proved by the uncoloured figures in the manuscript, which are as substantial in appearance as the coloured ones.²⁰⁰ Added to this trait, the figures are displayed from every possible angle. A favourite posture, and one very provocative of pictorial depth, is that of the averted figure who kneels in the foreground, facing diagonally into the picture with a 'lost profile', that is with only a small part of the face visible.²⁰¹ It is a technique which also occurs in the James Psalter in a painting of Mary before the resurrected Christ,²⁰² and in another manuscript of the group, the Derby Psalter, where a monk faces inwards to contribute to the music-making.²⁰³

When such figures are placed together with other appropriate motifs in an outdoor setting, they become capable of evoking an expanse of terrain or landscape. In a picture showing the 'Quarrel of Abram's and Lot's Shepherds' (Pl. XXX),²⁰⁴ three pairs of figures are engaged in tussles that bring limbs and bodies into unusual positions, with heads foreshortened accordingly. The onlooker sees the back of one head, the profile of two faces, the foreheads and noses of others. The feet of the overlapping figures are placed progressively higher the more distant they are,

suggesting the existence of a receding ground plane. To the right, a flock of sheep is drawn in systematic overlap, extending the depth of the picture beyond the foreground figures. On the horizon stand three trees whose relative distance is marked by diminishing size.²⁰⁵ Thus in landscapes, interiors and the depiction of human and inanimate forms, the Egerton master shows that he had come to terms with the more progressive elements in European painting of the fourteenth century. He

... establishes a linear system of stereometric simplicity and hereby succeeds in mastering with a minimum of outward forms a world which had been expanded into a new dimension.

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(viii) The Bohun Manuscripts (c.1370-c.1400)

An examination of a major group of illuminated manuscripts dating from the 1370's to the 1390's, shows how forceful traditional notions of spatial composition remained. These works, commissioned by members of the Bohun family,²⁰⁷ contain vestiges of continental innovations which are restrained by conservatism.²⁰⁸ The evolutions in European painting are reflected in such details as the oblique setting of buildings and objects,²⁰⁹ an attempt at a receding landscape,²¹⁰ a frontal perspective rendering of a throne,²¹¹ the vaulting of an interior,²¹² and the averted head of a man rising from the grave (Pl.XXXI).²¹³

There is a desire, too, to escape from the straitjacket of Gothic planar design. Instead, objects and groups of figures are set in diagonal groups radiating from a central focus of attention. In a full-page miniature in the Bodleian Psalter (c.1370-1380), representing the 'Raising of Lazarus' (Pl.XXXII),²¹⁴ Christ stands at the centre while to right and left groups of rather stilted

figures, overlapping and progressively more elevated as they recede diagonally from the tomb, watch the event. These figures are conceived en bloc, although there is a clear separation between the two groups to the right and some sense of intervening space, even if the further group rises too high in the picture plane.

Pictorial depth is increased by a ground-plane which stretches inwards from the lower bar of the frame and implicitly towards the observer.²¹⁵ It supports two diminutive trees whose main function is to act as cues for foreground space by overlapping the tomb. The tomb itself adequately contains Lazarus and both he and it overlap Christ and the figures behind. So there is a series of steps by which the eye is led back into the composition, finally to be rebuffed by the tooled gold background which offsets so much depth in front of it. There is more to this background than at first meets the eye. It is not a vertical plane, since the upper edge is curved to suggest a concave backdrop. The segment of space above is filled by blue sky, in which wisps of cloud are visible, indicating that the illuminator had some knowledge of the advances in aerial effects made in France by the Boucicaut master.²¹⁶

All too often in the Bohun manuscripts, however, there is a return to the frontal planar design beloved by earlier generations of English illuminators. This is evident in the small initials of the Exeter College Psalter (before 1375), but the artist also has a regard for the independent integrity of the letters, which he incorporates into his design in interesting ways. The central stem of an M becomes an obscuring pillar, creating a sense of depth in the scene behind it;²¹⁷ in another case, the letter itself becomes three-dimensional as the same

letter passes both behind and in front of the scene to form a containing space (Pl.XXXIII).²¹⁸ It is hardly surprising in view of the small dimensions of these letters that the spatial demands of the historiation and the initial are frequently uncoordinated, with background figures overlapping their frame in a manner previously encountered in the Ramsey Psalter.²¹⁹

(ix) The Lytlington Missal 'Crucifixion' (1383-1384)

The tension between Trecento and Gothic forms of space is seen in a 'Crucifixion' of 1383-1384 in the Lytlington Missal,²²⁰ (Pl.XXXIV) executed in a style which Rickert associates with that of the Bohun manuscripts.²²¹ In this miniature a demonstrative Italian realism meets an English reticence, the dramatic mood of the composition, with its emphasis on experiential truth, being chastened by more archaic elements which insist on the validity of conceptual motifs. As incipient naturalism is juxtaposed with traditional symbolism, so the three-dimensional effects are held in check by planar constructs.

A number of recessional cues derive from continental sources. A rocky ground-plane extends backwards on which the base of the cross, though incorrectly drawn, and the feet of the onlookers are squarely placed. Forms are placed higher in the picture-plane the further back they are in a horizontal dimension and there is some attempt to scale down the more distant figures. The human figures occupying the crowded scene generally overlap each other in an optically consistent way, while at right and left the frame obscures two individuals to suggest the existence of more people out of sight. The picture is full of action. Mary swoons into

John's arms; Longinus points to his eyes, healed by the blood of Christ; Stephaton, whose averted posture echoes precedents both in Italian art and the Egerton Genesis group, holds up the sponge to Christ;²²² and the Centurion acknowledges Christ while a mocker rails.

At the same time, less representational elements act as a brake on full-blooded realism and transport the scene to another realm of religious significance. The sun and moon, above the arms of the cross, are ciphers for the power over the universe demonstrated by Christ in overcoming death.²²³ The hovering angels, emerging from stylised clouds, indicate the divine nature of Christ and, by catching his blood, the eucharistic import of his self-sacrifice.²²⁴ The large haloes which surround the heads of Christ, Mary and the apostles are similar signs which underline the other-worldly aspect of events on Golgotha.

Such symbolic devices have a retrogressive effect on pictorial depth because they discourage by their design and meaning an exclusively naturalistic interpretation of what is represented. Their tendency is reinforced by other, purely formal aspects of the composition. The content of the picture is organised in a series of contrived vertical planes - the familiar membranes of Gothic painting - designated by the gold background, the crosses, the figures and the frame. Emphasis is given to these by the vertically divided pattern of the background and the linear scrolls rising from the Centurion and the mocker. And, as typically happens, the planes are interlinked in such a way that perceptual truth is defied. The cross, set well back at the base, has an inscription which overlaps the upper frame while the

garments of John and a bystander at the opposite side behave in similar ways.

(x) The Carmelite Missal (1393-1398)

The decisive step away from the transitional phase of the Lytlington 'Crucifixion' is taken in the fragmented Carmelite Missal of 1393-1398.²²⁵ One of its illuminators, the author of what Rickert terms Style A, was schooled in Netherlandish and French painting. Two of his chief characteristics are the realization of space and formal solidity.²²⁶ His work reveals a confident handling of oblique settings, averted figures, recessional overlap on a supporting ground plane, and facial modelling.²²⁷ Most importantly, he creates some of the first convincing interiors seen in English art, which he populates with substantial human figures.²²⁸

The 'Nativity of the Virgin' (Pl. XXXV) is represented within an initial letter G which, if it is conceived of as rigid, is not reconcilable with the position of the room.²²⁹ In fact the letter has become pliable and contributes to the spatial effects, especially at the point where it curls over the roof, indicating its slope and solidity. The artist has adopted the frontal 'doll's house' design - an interior with the front wall removed - to which is added an obliquely set porch.²³⁰ There is some disjunction where the porch meets the wall of the house, but the disjunction is held in check by the receding interior wall which accentuates the depth of the interior. The oblique bed, within which the contours of St. Anne can be discerned, also asserts the existence of a considerable interior space, as do the small table and the receding tiles. The bed is placed in front of clearly

separated figures, some of whom are only partly visible. Behind them appear the windows of the rear wall. The whole edifice is a room within a room for it is supported on another ground plane within the initial, this 'floor' coming to a halt at a vertical patterned wall that forms the background of the design.

(xi) The 'Troilus' Frontispiece (c.1410)

About 1400, English painting finally capitulated, after a lengthy rear-guard action, to the invasion of foreign influences represented in the A style of the Carmelite Missal. This mode of representation, with its accent on depth and solidity, was itself a formative force on what has become called the International Style.²³¹ At a time of intensive cultural cross-fertilisation, centring on cosmopolitan courts and patrons, the individual traits of Italian, French, Flemish and English painting coalesced.²³² The eclectic style is represented in England in the work of Herman Scheere, a painter probably from Cologne who was active in this country until c.1414.²³³ He and his atelier produced numerous manuscripts, culminating in the Bedford Hours.²³⁴

But it is more appropriate to end this discussion of English painting with a miniature executed in the early fifteenth century in which there occurs an accumulation of the problems with which the present chapter has been concerned. Executed in the International Style, it provides a convenient summary, together with the Carmelite Missal interior just discussed, of the visual cues which artists practising in England had admitted into their repertoire. Furthermore, by being the portrayal of a poet, usually identified as Chaucer, reciting to a courtly audience, it serves to focus attention on his relation to the international

culture of his time.

The full-page miniature is the frontispiece to a manuscript of Chaucer's Troilus and Criseyde (Pl. XXXVI), most recently dated to the second decade of the fifteenth century.²³⁵ It has the appearance of a panel painting, with the edges of the frame cutting off the scene as if the activity continues behind it. The composition is structured in a series of four diagonal wedge-shaped bands running across the picture surface from the lower left to the upper right and appearing to lead into pictorial depth. The first is comprised of the seated and standing figures in the foreground and the narrow rocky ground immediately above them; the second contains another group of listeners standing in front of the poet, the poet himself in his pulpit, and a wooded valley behind him; the third is marked by the rocky terrace that runs right across the picture; and the fourth by the large castle and the figures who come and go.²³⁶ Finally, there is an attempt to balance the design with the prospect of a distant castle at the top left of the picture, which adds one more fragmentary band. The scene takes place on the rising slopes of a hillside and in this respect, as well as in its use of overlapping diagonal bands, it is not unlike Duccio's 'Entry into Jerusalem'.²³⁷

Within each wedge-shaped band, care is taken to follow the laws of diminution. In the first register, the figures are progressively reduced in size, as are the rocky terraces and the trees behind them. Similarly, in the second register, the more distant poet is smaller than the standing figures, while behind him stretches a forest of scaled trees. But the rate of diminution in one 'wedge' and the next is not synchronised, the

trees of the first and third being much larger than those of the second, even though they are at the same distance. The painting gives the impression of having been constructed from independently painted diagonal strips.

As the eye is led into depth from left to right by diminution in size, increasingly fine textures and progressive loss of detail, so it also follows a route into the scene from left to right. Here the main cue is the simple but effective one of overlap. Each diagonal band overlaps the next. With the addition of a distant mountain castle, a useful cue since it can be compared with the nearer, larger and more detailed building at the right, the eye is able to travel further into depth along this route than it can along the first. All the same, it encounters jerky and abrupt jumps between the edge of one compositional band and the next. This is particularly noticeable at the central slanting wall of rock, an obstacle which threatens to dislocate and bisect the entire painting.²³⁸ The landscape is in fact discontinuous, although the artist, by a careful masking of the terrain at crucial points, would have the observer think otherwise. There is a particularly blatant example in the form of a dark, unnatural pinnacle of rock in the upper half of the picture. It enables the illuminator to avoid the relatively difficult task of creating a continuous ground surface between the walking figures and the most distant peak. In the event, the abruptness of the transition from one overlapping wedge to the next is mollified by the scaling of the figures, those in the foreground being larger, bulkier and more detailed than their more elevated counterparts.

At the apex of the two major movements into depth stands the

centre of attention, the poet. Reinforcing this visual focus is a subsidiary path into foreground depth, taking the eye immediately across the first glimpses of a ground plane and over the dominant reds of two seated figures to the matching colour of the pulpit and its occupant. All roads lead to Chaucer. The immediate impression of foreground depth is activated by the various figures, who adopt postures like that of the onlooker himself, sitting facing the poet, with their backs to the picture plane. They are shown from a wide range of angles and in an equally wide number of facial foreshortenings, including one figure who cranes his head back to look up at the pulpit in an attitude reminiscent of the figures in the Egerton Genesis.²³⁹ The flow of draperies, the differences of figure size, hair style and costume, all add to the tantalising sense that this is a group of recognizable individuals, whether historical or fictional.²⁴⁰ At the same time, they are placed in a stylised landscape that is more after Duccio than Lorenzetti, one backed by an arabesqued gold reinforcing the artificiality of the setting. Yet a streak of blue sky breaks through as if in recognition of more recent developments in the rendering of landscape.²⁴¹

Compared with contemporary and earlier European landscapes, the Troilus frontispiece is spatially reticent. As on so many occasions throughout the fourteenth century and beyond, it reflects but does not remodel European prototypes. One looks in vain in English illumination at the turn of the century for the appearance of aerial perspective, or a continuous ground plane, or shadows. In a sense the portrait of Chaucer, within the setting of a miniature done in an English variant of the International Style,

is misleading. His own optical sensibilities, if they are to be matched in art, find their proper context in paintings executed on the continent. This is not surprising, for in literary terms as well Chaucer is an internationalist who draws on French and Italian works.

F. ENTER PERSPECTIVA

Neither in literature nor art during the fourteenth century was there a systematic optical realism. The situation began to change in the early fifteenth century. As artists looked for further means whereby they might represent their experience of the visual world, they turned for help to scientific optics.²⁴² In doing so, they testified to the vitality and pervasiveness of a tradition the effects of which were already evident in literature and which was to enjoy a fruitful relationship with the visual arts until the sixteenth century.²⁴³ The translation of Alhazen's De aspectibus and De crepusculis into Italian in the first half of the fourteenth century had made the central optical text more accessible,²⁴⁴ while the Quaestiones super perspectivam (1390) of Blasius of Parma, a scholastic text based on Pecham's Perspectiva communis, stimulated debate on perceptual issues.²⁴⁵ Blasius taught at the universities of Bologna, Padua and Florence between 1378 and 1411. A copy of the Quaestiones was brought to Florence in 1424 by the scholar Paolo Toscanelli (1397-1483), who may himself have written books on perspectiva.²⁴⁶

(i) Filippo Brunelleschi (1377-1440)

Toscanelli was a friend of the painter and architect Filippo Brunelleschi, whose own researches into vision are apparent in the reports of two paintings he made in Florence of the Baptistery in the Piazza del Duomo and of the Piazza della Signoria.²⁴⁷ In his Piazza del Duomo painting of 1425, Brunelleschi wished to create a completely illusionistic effect of looking at the Baptistery. The painting is now lost, but it is described in detail by

Brunelleschi's biographer, Antonio Manetti (1423-1491).²⁴⁸ To receive the correct impression, the observer had to stand on the same spot from which the artist had copied the building. He had then to view the picture reflected in a mirror, seen through a hole bored in the back of the painted panel. The composition included a silvered sky which itself reflected the real thing (Fig.4).²⁴⁹

It is clear that Brunelleschi had developed a system of vanishing-point perspective, valid from a fixed point of view, which co-ordinated all the separate visual cues which until his time had acted as independent and sometimes conflicting units of spatial compositions.²⁵⁰ The key to this new homogeneous space was a geometrical method of establishing the precise rates of diminution of distant objects, so maintaining the same relative proportions as are seen in the visual world. This decisive element in Brunelleschi's work receives testimony from his biographer Manetti, writing a few decades after the painter's death:

Cosj ancora in que tenpi e misse innanzi et innatto luj propio quello che dipintorj oggi dicono prospettiva, perche ella e una parte di quella scienza che e in effetto porre bene et con ragione le diminuzionj e acrescimenti, che appaiono agli occhi degli huomini delle cose di lunghi e d'apresso, casamenti, piani et montagnie e paesi d'ognj ragione et innognj luogo le figure e l'altre cose di quella misura che s'apartiene a quella distanza che le si mostrano di lungi. E da luj e nato la regola, che e la inportanza di tutto quello che di cio se fatto da quel tempo in qua.

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(ii) Leon Battista Alberti (1404-1472)

The usefulness of medieval optics to Quattrocento artists is shown in the De pictura of Leon Battista Alberti. The Latin text was written in Florence in 1435 and then done into Italian for

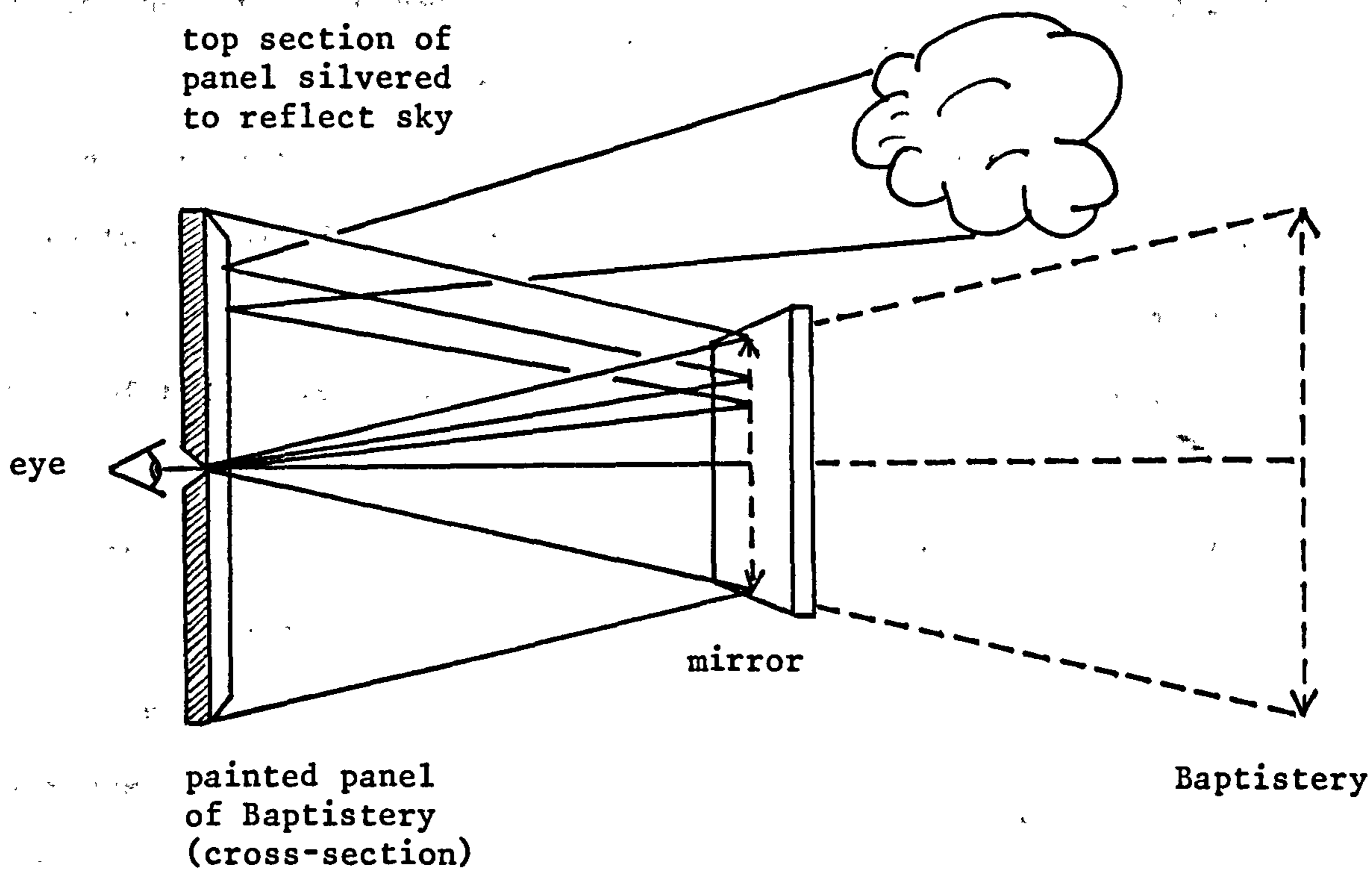


Figure 4: Brunelleschi's perspective painting of the Baptistery in the Piazza del Duomo, Florence: reconstruction of its optical principles.

Brunelleschi the following year.²⁵² Alberti insists on a knowledge of geometry as a prerequisite for painters.²⁵³ Fundamental to his conception of spatial design is that cornerstone of medieval optical theory, the visual pyramid.²⁵⁴ Alberti describes how rays from a visible object are bunched in a pyramid with its apex in the eye. Among these rays he distinguishes three types: the extrinsic, coming from the outline of the object; the median ray, within the pyramid and imbued with colour and light from the object; and the centric ray, perpendicular to the object and the lynch-pin of the whole structure, called the "dux radiorum". The angle at the apex of the pyramid varies with the apparent size of the object. As the base of the pyramid changes, so the median and extrinsic rays interchange. The colour conveyed by the median rays becomes fainter with distance and changes according to the existence of light and shade.²⁵⁵

The painter's task is therefore to plot on his two-dimensional surface the various light rays within the visual pyramid stemming from the scene he is representing, in such a way that their proportional and spatial relations are preserved. The painted surface has thus become an intersection of the visual pyramid or open window: "aperta finestra est qua historia contueatur".²⁵⁶

Painters should understand that

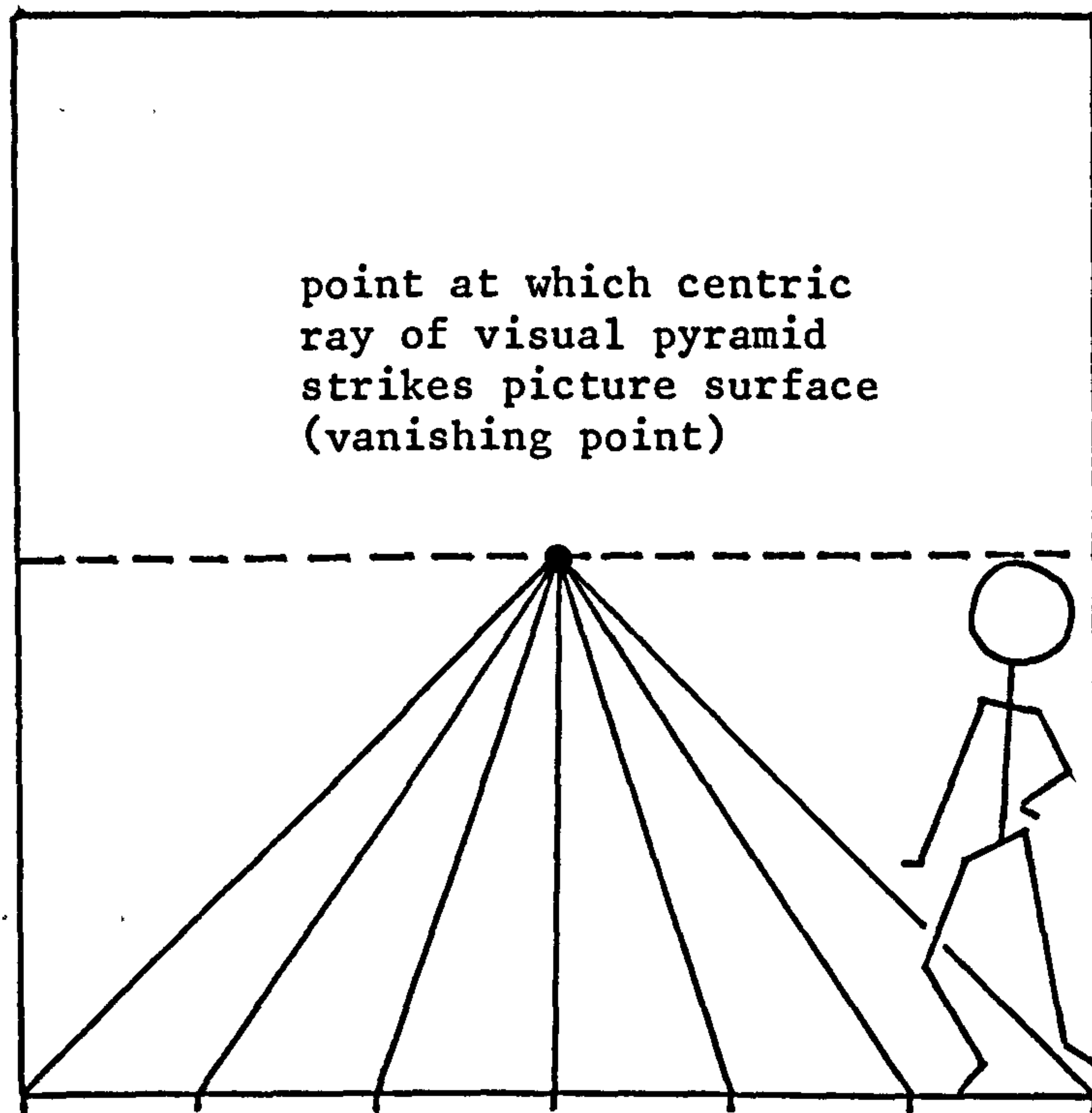
... dum lineis circumeunt superficiem, dumque descriptos locos implent coloribus, nihil magis queri quam ut in hac una superficie plures superficierum formae repraesententur, non secus ac si superficies haec, quam coloribus operiunt, esset admodum vitrea et perlucida huiusmodi ut per eam tota pyramis visiva permearet certo intervallo certaue centrici radii et luminis positione cominus in aere suis locis constitutis ... cum haec sit

unica seu tabulae seu parietis superficies in quam pictor plures una pyramide comprehensus superficies studet effingere, necesse erit aliquo loco sui pyramidem visivam perscindi, ut istic quales fimbrias et colores intercisio dederit, tales pictor lineis et pingendo exprimat. Quae res cum ita sit, pictam superficiem intuentes intercisionem quandam pyramidis videre videntur. Erit ergo pictura intercisio pyramidis visivae secundum datum intervallum posito centro statutisque luminibus in datam superficiem lineis et coloribus arte repraesentata.

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To achieve this result, Alberti first advocates that the various compositional components should be related to the size of the human forms. The base line of the picture frame is then divided up into units of one braccio, being a third of the height of the human figure within the painting. The point at which the centric ray of the visual pyramid strikes the pictorial 'window' is then fixed and to it are joined the points of division along the base line (Fig.5). In this way, Alberti establishes the vanishing point to which all orthogonals converge. With the addition of transverse lines in proportional diminution, there is constructed a ground-plane or grid on which all forms can be placed. Surfaces parallel to the picture plane are not foreshortened but recessional surfaces can now obey a common rate of size reduction. The ground plane is given further authenticity with the introduction of an horizon line, above which most forms placed in the same ground plane do not project (Fig.6).²⁵⁸ In the following book, Alberti recommends in addition the use of squared veil of thin fabric through which the scene to be painted can be viewed. By itself being an intersecting vertical plane of the visual pyramid, it is of assistance in mapping the outlines of forms and so finding the apex of converging lines.²⁵⁹

pictorial
'window'



units of 1 braccio
(one third the height
of human figure)

Figure 5: First stages of Alberti's perspective system.

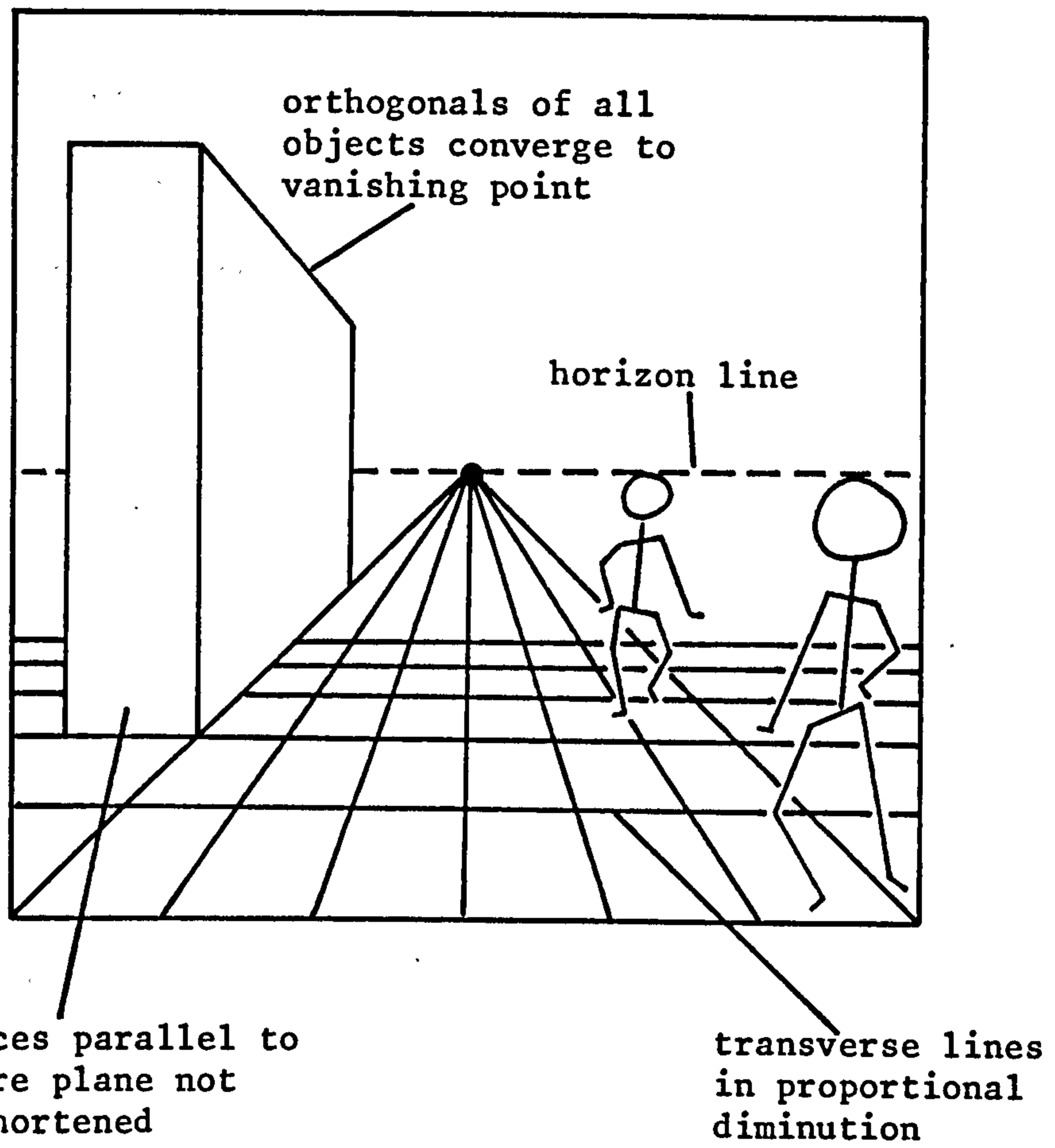


Figure 6: Later stages of Alberti's perspective system.

(iii) Lorenzo Ghiberti (1381-1455)

Further evidence that the artists of the early Quattrocento were plundering the medieval optical treatises comes from the Third Commentary of Lorenzo Ghiberti, written about 1447. It is a collection of extracts from Bacon, Witelo, Pecham and particularly Alhazen.²⁶⁰ Ghiberti's borrowings indicate that he was primarily interested in the perception of distance and of relative size. The optical texts, in describing how the eye sees, provided him with information about those visual cues necessary to an artist who wished to create an illusion of unified, three-dimensional space.²⁶¹ For instance, Ghiberti quotes from Alhazen an experiment to show that distance cannot be accurately estimated unless a continuous ground plane is also visible. The experimenter views through an elevated aperture two parallel walls, in such a way that the ground is hidden. These are some of the consequences:

Quando sarà entrato in questo luogo arà guatato in questo foro, vedrà insieme le due pareti e non comprenderà la remozione che è tra quelli. Ma se la remozione del primo parete fosse grande remozione e strana dal foro, comprenderà due parete e parrà che si tocchino insieme e forse stimerà che sia un parete continuo.

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Ghiberti reiterates the importance of a continuous ground-plane when, again following Alhazen, he describes how man uses his own dimensions as a measure of distance.

... il viso comprende la quantità della remozione de' visibili, riguardando i corpi ordinati, i quali sono la maggiore parte i visibili assuenti, i quali sempre si comprendono dal viso, e più frequentemente sono le superficie della terra ed il corpo della terra giacente tra essi i corpi degli uomini aspicienti ... il principio della comprensione della terra del quale la quantità si certofica il piede di quello è presso a piedi si comprende dal viso e la virtù distinctiva per la mensura del corpo dell'uomo per il piè d'esso quando va sopra a esso.

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White sees the emergence of artificial perspective as a result of those artists who were already interested in perception turning to the medieval science of optics. The writings of Alberti and Ghiberti

... do not explain the emergence of artificial perspective. They do show, however, a clearly defined conception of visual reality that was potentially fertile ground in a period of rapidly growing interest in the representation of space. It only needed the application of these ideas to representational problems for them to provide the complete basis for a system of perspective. The structure of Alberti's artificial perspective reveals at every stage ideas which are the exact reflection of those found in the medieval texts. It seems most likely that just such an application of optical theory to representational problems lies behind the invention of the new system.

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The new system to which White refers is the one first practised by Brunelleschi, described by Alberti and refined by Ghiberti, in which a common vanishing point and geometrically devised rate of recession serve the purpose of integrating the various spatial elements. It has been seen that in Trecento art and in later French painting artists had developed a considerable repertoire of devices for rendering space in a localised manner. Physical forms and human bodies were the major repositories for depth, which was further enhanced by such co-ordinating techniques as overlap, receding ground planes, domestic interiors and continuous landscapes. But the degree of co-ordination depended on the degree of pragmatism which the artist brought to his composition.

With the advent of Brunelleschi, perspective ceased to be empirical and became instead a stable and self-contained method of creating autonomous space. Forms were now freed from the sole responsibility of providing visual cues for pictorial depth. It

pre-existed them and they were placed within it. At the same time, the space within the picture, now regarded as a window on the world, became co-extensive with that outside it. A continuity was thus established between the space of the pictorial world and that of the physical world, in which the point of view of the onlooker became all important: it was only from one particular position that the illusionism of the picture could convincingly work. Account was thereby taken of the visual response of the observer to the picture in front of him, and the role of personal interpretation gained in importance.

CONCLUSION

A. SUMMARY

The preceding discussion of the development of pictorial space in the fourteenth century brings the present study full circle. For it was the cycle of change from pictorial flatness to pictorial depth which first prompted this exploration into Chaucer's manipulation of light, vision and space. On the basis of artistic models, two assumptions were originally made: that Gombrich's notion of the 'mental set' was applicable to literature; and that Chaucer's work could be brought into a valid relationship with the optical theory of his day. It is for the reader to decide whether or not these assumptions have been vindicated. It is my contention that Chaucer's contact, both direct and indirect, with the medieval optical tradition, enabled him to conceptualize, organise and represent his fictions in distinctive ways. He, no less than Dante or Jean de Meun, demonstrates that optical texts and their lines of influence affected literary as well as artistic styles.

At the outset, an attempt was made to discover and describe the 'mental set' with which Chaucer and his contemporaries might have accounted for visual phenomena. The starting point for such researches was in the scientific texts on perspectiva. It emerged that this corpus of work contained the source material for late medieval notions of visual stimuli, the behaviour of light, the perception of space and the psychology of perception. Attention then focused on those features of perspectiva most relevant to narrative texts, namely the explanation of light, vision and space. The appropriate contributions of Greek, Arabic and Western authors to the swelling tradition of optical writings

were described. So was the way in which the science of optics began to be absorbed into European culture in the early thirteenth century, at a time when the universities were being established. It was seen that a process of assimilation with the theological tradition of light metaphysics further helped the progress of perspectiva until it became a revered discipline within the university curricula..

An examination of some encyclopedias showed that their authors did not fail to take full account of perspectiva in their digests of available knowledge. Given the wider readership for encyclopedias, this factor began to suggest that certain ideas about perception enjoyed a relatively wide circulation from the mid-thirteenth century. Further evidence of the wide dissemination of such ideas was discovered in sermon exempla which, drawing on the received antinomy between the outer and inner eye, incorporated scientific optics by subjecting experimental data to moral interpretation. The spread of optical knowledge by this means to all sectors of the community was greatly facilitated by the evangelical activities of the friars.

Having established these three lines of influence, it was appropriate to demonstrate how they might have affected Chaucer. Due account was taken of Chaucer's interest in, and access to, scientific texts, encyclopedias and sermons. Three case-studies were then presented, each endeavouring to show how closely certain passages which Chaucer had added to his sources could be aligned with various types of optical text. Works by Robert Holcot and Vincent of Beauvais provided material most similar to Chaucer's.

If, in other cases, direct influence could not be surmised, there was ample circumstantial evidence to show that Chaucer was actively responding to the optical interest of his day.

Chaucer was seen not to be alone in this response. The evidence showed that Jean de Meun, Dante and Boccaccio each demonstrate in their different ways an awareness of the traditions of perspectiva. As is well known, Chaucer was intimately acquainted with works by these major European poets and they acted as an important fourth channel through which he received ideas about the poetic application of perceptual ideas. It was argued that Chaucer did not merely copy his French and Italian models. He reworked older visual conventions, blended the optical material from different sources, and introduced into the tales visual themes that are essentially his own.

In order to examine Chaucer's optical sensibilities in more detail, Fragments VIII and I of the Canterbury Tales were examined at some length. It was argued that in the first of these Fragments, the Second Nun's Prologue and Tale and Canon's Yeoman's Prologue and Tale, contrasting ideas of materialism, vision and blindness are presented, with a common-sense point of normal vision being found in the pilgrim narrator.

With the Tales of Fragment I, it was possible to effect a close comparison between Chaucer's poems and his sources and analogues. Acts of seeing were shown to be important throughout Fragment I. The sight of Emelye lies at the root of the action of the Knight's Tale, while a more realistic attention to the circumstances of vision marks the world of the Miller's Tale and the night-time fiasco which concludes the Reeve's Tale. As might

be expected in the fabliaux, there is considerable attention to the appearance and movement of people and to the behaviour of objects, all important factors in creating an impression of domestic space. The treatment of interiors is carefully elaborated by Chaucer in the Miller's Tale and Reeve's Tale, where his use of the third dimension is controlled and purposeful. In the Knight's Tale, the sense of space is equally important, as the three major loci of the Tale are each associated with distinct aspects of the philosophical problem which the poem explores. It was possible to argue that the treatment of light, vision and space is a unifying feature both of the Fragment and perhaps of the pilgrimage framework as a whole.

Finally, some account was given of the development of pictorial space in Europe during the fourteenth century, in order to provide a parallel for literary developments. The process was described whereby Italian artists such as Duccio and Giotto introduced localised, pragmatic forms of space which, in works by later artists of the Trecento, grew into a considerable repertoire of visual cues for suggesting pictorial depth. In Italy a reaction towards more two-dimensional forms then set in, while Franco-Flemish painters continued to progress in their techniques for rendering light and space. The Boucicaut master and the Limbourg brothers were of particular interest in this respect. English art of the same century was shown occasionally to reflect, never to advance, these tendencies in continental art. By the early fifteenth century, systematic forms of perspective were being developed by Brunelleschi and Alberti. It was suggested that a major stimulus to their innovations was the medieval science of perspectiva.

B. THE DIRECTION OF FURTHER RESEARCH

This picture of Chaucer's relations with the medieval optical tradition is by no means complete. The intention has been to frame parts of Chaucer's poetry with some of the major developments in the traditions of scientific optics and in the development of pictorial space. It is to be hoped that the attempt to provide a context for some of Chaucer's interests and practices not only helps to make his work more intelligible, but also alerts the reader to the presence in his work of a recurrent and significant interest in light, vision and space.

Many details remain to be added. It would be valuable to know with more precision the status of perspectiva in Chaucer's lifetime. Here, a study of the influence of optics in the writings of Ockham might serve as an entry to understanding the sort of associations which the subject had in the later fourteenth century. It might then be possible to key Chaucer's perceptual ideas more exactly to the state of the science as it was understood in his day. The danger in such a study would be in forgetting the wider canvas, the deeper tradition, of which Ockham as much as anyone else was the inheritor, going back a century or more and connecting sight with spiritual cognition rather than with philosophical speculation.

The importance of sermons in the transmission of optical knowledge to Chaucer and his audience has already been stressed. It would now be appropriate to examine individual sermons to discover how optical exempla fit within the larger dimensions of homiletic discourse. Surely the way in which optical data was presented was often as important as the content itself. A study

of the prominence and extent of elaboration given to optical exempla in the sermons of Grosseteste, say, would provide food for thought, for his were surely some of the most influential optical sermons of all.

It is difficult to suggest which passages in Chaucer, other than those considered, might serve as further case-studies for the influence of the various strands of the optical tradition. The perception of landscape in Troilus and Criseyde might prove a fruitful topic. Certainly, instances of the perception of distant objects over an extended terrain could be cited from Alhazen and Witelo. Alternatively, a closer study of the works shown to be nearest to Chaucer's interests in perception, such as Holcot's commentary on Wisdom, might lead to the reappraisal of certain passages in his poetry. A wider area of exploration exists within individual works. It has already been implied, through partial analysis, that the Merchant's Tale and Troilus and Criseyde are particularly responsive to the type of reading adopted in this thesis. With the medieval optical tradition in mind, they would repay a more lengthy examination to discover in more detail the implications in these poems of Chaucer's treatment of light, vision and space. The Franklin's Tale might also prove worthy of the same degree of attention.

As it is possible to see the perceptual interests of Chaucer in the wider context of a scientific tradition, so more precise parallels might be drawn between his work and developments in the visual arts. It is significant that if Chaucer's visual sensibilities are to be matched in literature, it is to European poets that we must go. He is not explicable as the product of

an exclusively English tradition. And just as the optical tradition is a continental, as well as English, movement, so is the growth of perspective in painting. When considering Chaucer's emphasis on light, vision and space, it is largely French and Italian painting that provide adequate correlates. Similarities might be seen, for example, between the pragmatic, local space used by an artist such as Giotto and the pockets of calculated spatial description that occur in Fragment I of the Canterbury Tales; or between Chaucer's sense of an interior and the appearance of interiors in Italian and then French art. Specific comparisons might also be made between Chaucer's use of light and darkness in a poem like the Reeve's Tale, and the appearance of the same phenomena in Franco-Flemish paintings of the late fourteenth and early fifteenth centuries. Again, Alberti's perspective window could be seen as an artistic version of the sight of Emelye through a barred window, as occurs in the Knight's Tale. Unfortunately, such comparisons beg too many questions to have been considered at length in the present study. To be properly explored, such relations between literature and art need to be based on a thorough grasp of the differences, as well as the similarities, of the two art forms, with full attention also being given to what Chaucer derived from his literary sources.

A final word may be said on the method adopted in this thesis and its usefulness for future studies. As the Introduction made clear, the method is a hybrid affair comprised of approaches previously used in works on Chaucer, on science and on the visual arts. Broadly speaking, the procedure has been to consider in

detail a particular body of scientific works and their general lines of influence, and then to read Chaucer in the light of this tradition. In so doing, it has been possible to detect the presence in his work of features which are not immediately apparent. The method is somewhat different from that usually found in studies on Chaucer and science, where puzzling aspects of his work are used as bases for guerrilla raids into the hostile territory of medieval science. The result is all too often a literature of gobbets and a belittling of the importance of scientific thought in Chaucer's day. Literary critics tend to fight shy of an area of writing which their own education has taught them to regard as difficult. In the fourteenth century, science did not suffer from the isolating effects of specialisation. It was thoroughly integrated with other spheres of intellectual and practical activity. The story of optics ideally illustrates the process whereby a technical subject was assimilated into the mainstream of medieval thought. With the publication of increasing numbers of modern editions and translations of medieval scientific texts, as well as studies of them, it is to be hoped that other major traditions of medieval science will also attract students of Chaucer.