

THE GOTHIC SYMBOL:
MANIFESTATIONS OF THE MEDIEVAL CONCEPT OF ORDER
IN MUSIC, ARCHITECTURE, AND PHILOSOPHY

by

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ABSTRACT

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During the twelfth and thirteenth centuries there was a concentrated phase of synchronous development of music, architecture, and philosophy, which was more concrete than mere parallelism. All of these forms were united by a certain trait of character, although they were differentiated from one another by their own individual substance. In seeking to define this "trait of character" or "essence" of Gothic style it is possible to isolate certain essential principles.

The first of these is the fact that all three forms of expression were rooted in the common tradition of the Christian religion, and utilized its doctrine as the basis for their varied structures. For the cathedral the ground plan was the form of the Christian basilica; for the liturgical music the foundation was the Gregorian chant; and for the philosophical structures the base was the accumulation of Scriptures and patristic writings.

The infusion of Platonic concepts and Aristotelian methods into the Christian tradition deeply influenced the intellectual systems of the medieval philosophers and the artistic structures of the architects and composers. Their attempts to reconcile faith and reason gave rise

to religious and aesthetic concepts which became the ordering principles for the architecture, the music, and the great philosophical treatises.

The Scholastic philosophers thought of God as a rational force, the Creator of a world based upon principles of reason; He was the master-builder who had created the world by means of an architectural science based upon mathematics. The cathedral was the concrete manifestation of these mathematical ideas, while music was the reflection in sound of the same architectural system.

Structural elements--ratio, proportion, and systematic division--were fundamental to the evolution of the Gothic style, but only as a means to an end. The dialectic in philosophy, the structural principles in architecture, and the techniques utilized in the composition of linear polyphony were methods devised to bridge the gap between matter and spirit.

For medieval man the physical world had no reality except as symbol. He was preoccupied with the symbolic nature of the world of appearances, for he believed that God had given to every created thing a cryptic meaning which could be read in the light of symbolism. The image was perceived not as illusion, but as revelation, for God was the beginning and also the goal of human knowledge. Music and architecture became vehicles to lead the mind toward the comprehension of the divine order.

Thus, the artistic forms became the perfect expression for the spirit of the age. Religious fervor was given expression in the soaring verticality of the architecture, and in the sonorous consonances of the music. The medieval passion for clarity and order was reflected in the principles of construction of the cathedral and the motet. But it was

the potent combination of these two factors--religious mysticism and Scholasticism--that provided the essential motivation; it was a unique interaction of idealistic and technical factors which produced the Gothic style.

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CHAPTER I

INTRODUCTION

The artistic style of the twelfth and thirteenth centuries is known as "Gothic." The scope of this term, which was coined exclusively to describe architecture, has been broadened by twentieth century cultural historians, and now includes within its framework the styles of medieval painting, sculpture, and music. All of these forms are united by a certain trait of character, while they are differentiated from one another by their own individual substance.

In seeking to define this "trait of character" or "essence" of Gothic it is necessary to explore briefly the concepts which differentiate the medieval attitude toward art from our own. The most important difference lies in the changed meaning and function of the symbol. For the twentieth century individual the symbol is an image that invests physical reality with poetical meaning. For medieval man the physical world, as we experience it, had no reality except as symbol. In other words, for us the symbol is the subjective creation of poetic fancy, but what we would call symbol was for medieval man the only valid definition of reality.¹ He was preoccupied with the symbolic nature of the world of appearances, for he believed that God had given to every created thing a cryptic meaning which could be read in the light of symbolism.

¹Otto von Simson, The Gothic Cathedral: Origins of Gothic Architecture and the Medieval Concept of Order (New York: Bollingen Foundation, 1962), p. xix.

The image was perceived not as illusion, but as revelation, for God was the beginning and also the goal of human knowledge.² For the men of the Middle Ages the foundation of everything in existence was God, as revealed in the Scriptures and creeds and councils of the Church, and all else was interpreted in the light of His revealed nature and character. This attitude was central not only to the creative artists, but to the scholastic philosophers as well.

In music this theological foundation was evidenced by the fact that linear polyphony was based upon the liturgical Gregorian chant, which, collected and ordered according to the feasts of the year, represented a sacrosanct whole. It was an accepted canon that nothing could be added or taken away. The only opportunity for creative expression by a composer was interpolation.

The belief that the Gregorian chant was perfect and unalterable was supposedly established with the reign of Gregory the Great (d. 604). The practical purpose of this doctrine was to establish a unity of liturgical music. Prior to this time each country employed its own music in the church service, and the effort towards standardization of the cantus Gregorianus was in line with the aim toward centralization of the church.

In the ninth century a legend was proffered by Paul Warnefried, a monk of Monte Cassino and deacon of the Church in Rome, according to which the Holy Ghost in the form of a dove whispered the melodies into

²Sartell Prentice, The Heritage of the Cathedral: A Study of the Influence of History and Thought Upon Cathedral Architecture (New York: William Morrow & Co., 1936), p. 122.

into the ear of Gregory the Great.³ Therefore the chant came directly from God and must be regarded as perfect. Although the establishment of a universal chant had a political purpose, and the legend provided a later justification, the fact remained that the chant was regarded as unchangeable. It became, therefore, the "ground plan" for all future creative activities.⁴

The cathedrals arose from a similar tradition. The Church took over the form of construction of the old basilica, gradually shaping it in a particular manner, giving it certain characteristic aspects, and, thus, finally, forming out of Greco-Roman elements something specifically Christian in aspect and idea. The Christian basilica became the constant architectural basis of all cathedral styles, its form being retained by all subsequent forms of Western church architecture.⁵

The methods of Christian scholarship in the Gothic age utilized Christian heritage and tradition in a similar manner. Previous generations had merely allowed patristic and later commentaries on Scripture to pile up, "like the hallowed but unsifted archives of some great institution."⁶ The Scholastic philosophers undertook the process of evaluation. The commentators' doctrinal interpretations of Scriptural

³Paul Warnefried, Saint Gregorii magni vita. In Patrologiae Latinae Cursus Completus, Vol. 75. Edited by J. P. Migne. Belgium: Typographi Brepolis Editores Pontificii, 1857. This publication will hereafter be cited PL.

⁴Manfred Bukofzer, "Speculative Thinking in Medieval Music," Speculum 17 (1942), 169.

⁵Hugo Leichtentritt, Music, History, and Ideas (Cambridge: Harvard University Press, 1938), p. 39.

⁶George Henderson, Gothic (Middlesex, England: Penguin Books, Ltd., 1967), p. 49.

passages were systematically arranged on the ground-plan of the Creed, thus giving an intelligible shape to the whole accumulated tradition of Christian learning. This close connection of philosophy with religion was the most important characteristic of Scholastic philosophy. In addition, there was throughout the work of the Schoolmen a close dependence upon ancient philosophy, especially as presented by Aristotle, and this philosophy was regarded as a corpus rational, "natural truths which are as ascertainable and valid in their degree as is the body of revelation."⁷ A third characteristic of Scholasticism was the method of quaestio et disputatio which was used throughout, not only for purposes of exposition, but also for those of research.⁸ This method is recognizable throughout the range of forms in which medieval thought finds expression, whether it be in the dialogues of St. Anselm, the Sentences of Peter Lombard, or the Commentaries on the Sentences, the Summae, and the Quaestiones Disputatae of the thirteenth century.⁹ It was in this way that the doctrine of the Christian religion acquired a rational aspect. Philosophy became to a certain extent an auxiliary to theology, for the medieval thinkers took revelation as a guide and made an effort to understand its contents, believing that this understanding would be philosophy itself.¹⁰ But theology also became tributary to philosophy, because it needed the light of the latter. This close interrelation

⁷David Knowles, The Evolution of Medieval Thought (New York: Vintage Books, 1962), p. 90.

⁸Ibid.

⁹Ibid., p. 87.

¹⁰Etienne Gilson, The Spirit of Medieval Philosophy (New York: Charles Scribner's Sons, 1940), p. 5.

between philosophy and theology, mutually influencing each other, is specific to Scholastic culture.

Utilizing the common "ground-plan" of Christian doctrine and tradition in its specific manifestations, the architects, composers, and philosophers built gigantic and complex structures. Each discipline developed its own devices and methods of construction, and it is in tracing the emergence of these parallel techniques that we are able to witness the common permeation of the scholastic spirit.

philosophy and theology, as the specialization of each, pursued their own paths, yet remained in constant contact with each other, and their mutual influence was most noticeable in the field of metaphysics and the philosophy of mind. The scholastic definition of being and the different kinds of sources: the Bible, the works of the philosophers, technical handbooks which were used by the artists and the engineers, and the literature of the Church and Latin authors.

... of the Middle Ages ... by ...

CHAPTER II

MEDIEVAL AESTHETIC THEORY

Sources

In attempting to define the fundamental tenets of medieval aesthetic theory, it is important to note the fact that the medieval philosophers and Church Fathers, as well as the specialists in music, painting, rhetoric, and prosody, reflected a specific civilization which generally expressed only universally accepted opinions in the field of aesthetics and the philosophy of art.¹¹ Their basic definitions and beliefs were derived from four different kinds of sources: the Bible, the works of the philosophers, technical handbooks which were used in the trivium and the quadrivium, and the literature of the Greek and Latin Fathers.¹²

The Bible provided the foundation for aesthetic symbolism in the description of the creation of man, leading the medieval philosophers to maintain that every form is beautiful in proportion to its resemblance to divine beauty.

¹¹Edgar de Bruyne, The Esthetics of the Middle Ages, trans. by Eileen B. Hennessy (New York: Frederick Ungar Publishing Co., 1969), p. 1.

¹²Ibid.

The philosophical source of medieval symbolism was Neoplatonism,¹³ which was derived from the philosophy of Plato. His aesthetic system was comprised of three facets--number, light, and symbol. Medieval philosophers assimilated all three of them, although not simultaneously or to the same degree.

The technical handbooks had tremendous influence upon the terminology and even the taste of the medieval writers. These sources discussed and clarified the problem of ars in relation to disciplina. A complete discussion of these treatises will be found below, in Chapter V, as they pertain to music in the Gothic world.

The Church Fathers very often served as intermediaries between antiquity and the medieval period. They were educated in schools which were repositories for all the aesthetic and artistic traditions of the past, and had practiced the arts of grammar and rhetoric. They had read the major works of the philosophers, and had been thoroughly inculcated with the civilization of the late Empire. Moreover, they had attentively studied Holy Scripture, and with their general, philosophical, and literary training, they attempted to explain the sacred text both directly and allegorically. It is not surprising, therefore, that the thinkers of the Middle Ages came into contact with the aesthetic

¹³Neoplatonism is the term used to define the philosophy of Plotinus (205-270) and Platonists influenced by him. It is a system which absorbed virtually all nonmaterialist and religious doctrines of earlier schools, especially the Pythagorean, Peripatetic, and Stoic.

system of the Bible,¹⁴ and with the classical theories of the philosophers, through the interpretation of the Church Fathers. In this regard St. Augustine was their principal source, as we shall see.¹⁵

The fully developed medieval aesthetic system was a synthesis of all of these sources, and it conformed to certain invariable principles which are repeated in the works of almost every medieval author. These principles may be divided into three categories: number and proportion, light and brilliance of color, and allegory and symbolism.¹⁶

Number and Proportion

Pythagoras, Augustine, and Boethius

The doctrine of number and proportion is Pythagorean in origin. In its early form the aesthetics of this doctrine defined beauty as an extremely simple, clear, distinct relation which can be expressed mathematically by the prime natural numbers. In its most evolved form it reduced beauty to complete equality, unity, and identity, just as it reduced numbers to a monad. Edgar de Bruyne points out that this theory followed the general intellectual trend of the Middle Ages, for it gradually evolved from its purely quantitative origins into a metaphysical system.¹⁷

¹⁴The creation of man laid the foundation for aesthetic symbolism in the Scriptures: "Faciamus hominem ad imaginem et similitudinem nostram." (Let us make man to our own image and likeness). Hence, every form was beautiful in proportion to its resemblance to divine beauty.

¹⁵de Bruyne, Esthetics, p. 44.

¹⁶Ibid., p. 47.

¹⁷Ibid., p. 14.

The Pythagorean aesthetic system was inspired by an ancient legend which was faithfully repeated by most of the medieval writers on music. According to this legend, Pythagoras stopped one day as he was passing by a forge, fascinated by the harmonious sounds which were produced by the striking of four hammers one after another on the anvil. He weighed each of the hammers, and found that their respective weights were twelve, nine, eight, and six pounds. When twelve was struck after six, he heard the interval of the octave. The succession of twelve and eight produced the fifth, and the fourth resulted from the combination of eight and six. The sound of the whole tone was produced by the succession of eight and nine.¹⁸

In this way musical quality was explained by numerical quantity. This could easily be demonstrated by the classification of intervals according to ratios obtained from relative string lengths on the monochord. This was a device consisting of a single string stretched over a long wooden resonator to which a movable bridge was attached so that the vibrating length of the string could be varied. The ratios obtained reflected those which Pythagoras discovered by weighing the hammers: 2:1 for the octave, 3:2 for the fifth, and 4:3 for the fourth. Thus, a definite relationship exists between arithmetic, which is a study of relationships in themselves, and music, which provides those relationships in sonorous movements. As de Bruyne remarks, "Aesthetics is mathematics incarnate in physical form."¹⁹

¹⁸ Boethius, De Musica, Lib. I, in PL LXIII, Col. 1176 ff.

¹⁹ de Bruyne, Esthetics, p. 48.

The Pythagorean theory was prevalent throughout classical antiquity and was subject to a strong revival during later antiquity as a natural part of the prevailing Neoplatonic philosophy. St. Augustine applied Pythagorean and Neoplatonic number mysticism to the interpretation of the Christian universe, thus establishing the cosmology which remained in force until the triumph of Aristotelianism. Augustine shared with Plato both distrust of the world of images and belief in the validity of mathematical relationships. His concepts of the function of the arts, and even their style, left their imprint on the development of Christian art and music for a thousand years.

The mathematical principles which Augustine defined as the principles of perfect musical proportion apply to the visual arts as they do to music. Since the musical intervals determined by using the monochord were marked off by divisions on a string, the arithmetical ratios appeared as the proportions between different parts of a line. These proportions therefore became the basis of the architectural principles as well.

Augustine had deduced the musical value of the perfect consonances from the metaphysical dignity of the ratios on which they were based. Therefore, it was natural for him to conclude that the beauty of certain visual proportions derived from their being based on the same simple ratios. In both plastic art and music, the deepest pleasures of beauty were explained by the projection of the fundamental relationships between prime numbers into time and the world of movement, or into space and the physical world. This created consonance, order, concord,

harmony, and beauty. Beauty was form, defined as a unified multiplicity; unification was proportion, and proportion was harmony.²⁰

The simple ratios were translated into the figures of geometry: for four or nine there were perfect squares of two on two or three on three; for the relation of one to two there was the double square; for the proportions of two to three or three to four there were rectangles in which the longest side surpassed the shortest side by one whole. Figures such as these were inscribed upon the facades of the cathedrals.²¹

The importance of the geometrical ratios lay in the fact that geometry, in the Middle Ages, was thought to have an "anagogical" function, and could lead the mind from the world of appearances to the contemplation of the divine order. Augustine described, in the second book of his treatise On Order, how reason, in her search for the blissful contemplation of the divine, turned to music, and from music to the things which lay within the range of vision. Beholding earth and heaven she realized only beauty could ever satisfy her, and in beauty figures, in figures proportion, and in proportion number.²² The aesthetic implication is clear that Augustine was sensitive to architecture as well as to music. For him, "Music and architecture are sisters, since both are

²⁰Ibid., p. 49

²¹Ibid.

²²Augustine, De Ordine, in PL XXXII, Col. 1013 ff.

children of number; they have equal dignity, inasmuch as architecture mirrors eternal harmony, as music echoes it."²³

Augustine's follower Boethius, who was considered to be the greatest mathematical authority by medieval thinkers, agreed that the proportions which yielded perfect consonances on the monochord were as readily perceived visually as they were acoustically, for he remarked, "the ear is affected by sounds in quite the same way as the eye is by optical impressions."²⁴ Moreover, Boethius did not confine this doctrine to lines or plane surfaces; he found "geometrical harmony" in the cube, since the number of its surfaces, angles, and edges, 6:8:12, contained the ratios of octave, fifth, and fourth.²⁵

Augustine and Boethius used architecture, as well as music, to show that number, as apparent in the simpler proportions that were based on the "perfect" ratios, was the source not only of aesthetic perfection, but also of divine revelation. This conviction was held to be valid by the philosophers of the Middle Ages since the Bible, their

²³Otto von Simson, The Gothic Cathedral: Origins of Gothic Architecture and the Medieval Concept of Order (New York: Bollingen Foundation, 1956), p. 23.

²⁴Boethius, De Musica, Lib. I, in PL LXIII, Col. 1194. "Quibus vero inter se distantibus consonantiae differant, id jam non auribus, quarum sunt obtusa iudicia, sed regulus rationique permittunt, ut quasi obediens faniulusque sit sensus, iudex vero atque imperans ratio."

²⁵Boethius, Ibid., Col. 1158. "Haec autem medietas, in omnibus cubis quae est geometrica harmonia perspicitur. Omnis enim cubus habet latera 12, angulos 8, superficies 6. Hic autem ordo et dispositio harmonica est. Disponantur enim 6, 8, 12; hic ergo quemadmodum est major terminum ad parvissimum, ita differentia majoris et medii ad parvissimam comparatur."

primary authority, also acknowledged the tremendous importance imputed to numbers in the sentence "Deus omnia in mensura, pondere et numero disposuit."²⁶ They recognized, as an article of faith and a fact, the rule of harmony, proportion, and number, not only in sound and movement, but also in spatial configurations.²⁷

The authority of Augustine and Boethius shaped the aesthetic thought of the Middle Ages. Augustine's philosophy of beauty became particularly influential in the second quarter of the twelfth century, when it was espoused by two powerful intellectual movements in France. The first of these was the group of eminent Platonists at the Cathedral School of Chartres. The second movement, which was antispeculative and ascetic, was associated with the great monastic houses of Cîteaux and Clairvaux; its most eminent spokesman was St. Bernard.²⁸ Otto von Simson remarks that French civilization in the twelfth century, a period known as a "renaissance", might be described as a synthesis of these two trends, which, although they differ in many respects, are nevertheless connected by close personal and intellectual bonds. Their most important common heritage, apart from the Bible, was the thought of St. Augustine. The aesthetic thought of the two movements had a great deal of influence upon contemporary art. Indeed, as von Simson points out, Gothic art would not have come into existence without the

²⁶Holy Bible, Wisdom of Solomon, Ch. 11, v. 20, "...Thou hast ordered all things in measure, weight, and number."

²⁷de Bruyne, Esthetics, p. 53.

²⁸von Simson, Gothic Cathedral, p. 25.

combination of Platonic cosmology cultivated at Chartres and the spirituality of Clairvaux.²⁹

The School of Chartres

The men who gathered at Chartres in the second quarter of the twelfth century were primarily interested in theological and cosmological questions, which they intended to solve by means of a synthesis of Platonic and Christian ideas. Their Platonism was based almost entirely upon one single treatise, the Timaeus. Only a fragment of this treatise was available, together with two commentaries by Chalcidius and Macrobius. The Platonic fragment was approached by the theologians of Chartres with nearly the same awe and reverence accorded the Book of Genesis. They believed that both of these sources were in substantial agreement concerning the creation of the universe and the Creator himself.

Like the Platonists and Pythagoreans before them, the masters of Chartres were obsessed with mathematics. They considered it to be the link between God and the world, the magical tool which would unlock the secrets of both. Thierry of Chartres, who was the most influential exponent of the system,³⁰ hoped to use geometry and arithmetic to find the divine artist in his creation, and he sought to explain the mystery of the Trinity by geometrical demonstration. According to him, the equality of the Three Persons is represented by the equilateral triangle.

²⁹Ibid., p. 26.

³⁰Jules Alexandre Clerval, Les Ecoles de Chartres au Moyen-Age (Paris: 1895; reprint ed., Frankfurt a. M.: Unveranderter Nachdruck, 1965), p. 317.

The square unfolds the relation between Father and Son. Thierry points out that Plato, like his master Pythagoras, identified the metaphysical principles of monad and dyad with God and matter, respectively. God is therefore supreme unity, and the Son is unity begotten by unity, just as the square results from the multiplication of a magnitude with itself. Thierry concludes that the Second Person of the Trinity is rightly called the first square.³¹ It has been said that Thierry and the School of Chartres attempted to change theology into geometry. This kind of synthesis gives us a glimpse into the meaning of geometry for the thinkers of the twelfth century.

The cosmology of the School of Chartres was even more significant to medieval aesthetic theory. From the Timaeus came the idea that the world soul was divided according to the ratios of the Pythagorean tetractys. Chalcidius underscored the aesthetic, and particularly musical, connotations of this theory, by pointing out that the division was effected according to the ratios of musical harmony.³² Both he and Macrobius insisted that the Demiurge, by dividing the world soul in this manner, established a cosmic order based on the harmony of musical consonance.

It was logical for the thinkers of Chartres to fuse this notion with the Augustinian idea of a universe created "in measure and number and weight." As a result the creation appeared as a symphonic composition in the works of Johannes Scotus Erigena,³³ and the idea was

³¹von Simson, Gothic Cathedral, p. 27.

³²Ibid., p. 28.

³³Johannes Scotus Erigena, De divisione naturae in PL CXXII, Col. 602, 630 ff., and 965.

absorbed by the School of Chartres. The harmony established throughout the cosmos was represented not only as a musical composition but also as an artistic one, specifically as a work of architecture.

The masters of Chartres could detect in Platonic cosmology the design and method of the divine architect who had built the universe, which Macrobius called the cosmic temple.

In the Timaeus Plato conceived of the primary bodies of which the world was to be composed as building materials ready to be put together by the builder's hand. This composition was effected by means of fixing the quantities in the perfect geometrical proportions of squares and cubes.

And he proceeded to divide after this manner. First of all, he took away one part of the whole (1), and then he separated a second part which was double the first (2), and then he took away a third part which was half as much again as the second and three times as much as the first (3), and then he took a fourth part which was twice as much as the second (4), and a fifth part which was three times the third (9), and a sixth part which was eight times the first (8), and a seventh part which was twenty-seven times the first (27).³⁴

According to this composition the world's body was in unity and concord with itself and hence would not suffer dissolution from any internal disharmony of its parts; the bond was simply geometrical proportion.³⁵ Thus, the perfect proportions acquired, in addition to the beauty which we admire in musical and architectural compositions, an explicit technical function: they chained and bound together the different

³⁴Plato, Timaeus, in Plato: Collected Dialogues, ed. by Edith Hamilton and Huntington Cairns, (Princeton: Princeton U. Press, Bollingen Series, 1963), p. 1165, b.

³⁵Francis Macdonald Cornford, Plato's Cosmology, (New York: Humanities Press Inc., 1937), p. 66.

elements which compose the cosmos. Forms remained in existence by virtue of harmony, which was the unvarying relationship unifying the parts within a whole. Musical proportion supplied, as it were, the formula of the universe.³⁶ Perfect proportion was thought to account for both the beauty and stability of the cosmic edifice. And, as we shall see, application of the "perfect proportions" as determined by rigid geometrical methods, became, for medieval architects, a technical necessity as well as an aesthetic postulate if the building, in a literal as well as symbolic sense, was to be stable as well as beautiful. The cathedral was both a "model" of the cosmos and an image of the Celestial City. By designing the sanctuary according to the laws of harmonious proportion, the architect not only imitated the order of the visible world, but conveyed an intimation of the perfection of the world to come.

Von Simson remarks that the mystical contemplation of the age, as well as the philosophical speculation, seems to be under the spell of an essentially musical experience, and that this trend is reflected in the monumental art.³⁷ In the structural system of the Gothic sanctuary the Gothic builder applied the very laws that order heaven and earth. The Gothic cathedral, in the technical, aesthetic, and symbolic aspects of its design, was intimately connected with the metaphysics of "measure and number and weight." It sought to embody the vision of the

³⁶Manfred Bukofzer, "Speculative Thinking in Medieval Music," Speculum 17 (1942), p. 180.

³⁷von Simson, Gothic Cathedral, p. 38.

Platonists of Chartres, insisting upon the realization of the laws of truth, no longer content with the mere image.

St. Bernard

The musical mysticism of the School of Chartres was shared by the Cistercian movement and its leader, Bernard of Clairvaux.

Bernard's artistic views are usually described as those of a puritan. In point of fact, von Simson, asserts, they are Augustinian. No other author exerted more of an influence upon Bernard's theological formation than Augustine, and musical mysticism could claim Augustine as its greatest spokesman. Not only did it permeate his cosmological and aesthetic speculation, it reached to the core of his theological experience. In his treatise De Trinitate, Augustine pondered the mystery of redemption by which the death of Christ atoned for man's twofold death of body and, through sin, of soul. In meditating upon this "congruence", this "correspondence", this "consonance" of one and two, musical experience gradually seized his imagination, and he realized that harmony was the proper term for Christ's work of reconciliation. The value of the octave, the musical expression of the ratio 1:2, was so deeply implanted in our nature by Him who created us that even the musically and mathematically uneducated immediately respond to it. Augustine felt that the consonance of the octave conveys to human ears the meaning of the mystery of redemption.³⁸ The consonances were, for Augustine, echoes of theological truth, and the enjoyment that the senses derive from musical harmony, and from its visual equivalent,

³⁸Augustine, De Trinitate, in PL XLII, Col. 889.

proportion, is our intuitive response to the ultimate reality that may defy human reason but to which our entire nature is mysteriously attuned.³⁹

This experience defined the medieval attitude toward music. It accounts for the fact that music was studied and cultivated even in monasteries of strict ascetic observation. For example, Othlon of St. Emmeram (1032-70), in embracing the most austere monastic ideal, renounced all his former humanistic interests. But arithmetic and music remained subjects for contemplation, and he used them to convey divine secrets to his fellow monks, to prepare them for the life in a world to come. The order prevailing among the heavenly hosts corresponds to the intervals of the perfect consonances, he advised.⁴⁰

Bernard held a very similar attitude toward music. He described heavenly bliss in musical terms, as an eternal choir of angels and saints for both aural appreciation and vocal participation. He demanded that the creation of music be attuned to the metaphysical and ethical experiences of Christian life, but he did not restrict its creative scope. The evolution of polyphonic music in the twelfth century was a magnificent response to his expectation that ecclesiastical music should "radiate" truth and "sound" the great Christian virtues.⁴¹

Bernard's musical ideas provide a clue to his convictions regarding religious art, for, as we have seen, musical and artistic

³⁹von Simson, Gothic Cathedral, p. 40.

⁴⁰Othlon of St. Emmeram, Dialogue de tribus quaestionibus, in PL CXLVI, Col. 117 ff.

⁴¹Bernard, Epistola CCXCVIII, in PL CLXXXII, Col. 60. "...opus illustret, it consonet sanctitati."

composition were closely allied. To a man who was so much a part of the Augustinian tradition, the presence of the "perfect" ratios must have been as evident in visible proportions as audible consonances. And the metaphysical meaning of the ratios which he admired in musical composition he could not have failed to apprehend in well-proportioned architecture.

Bernard's aesthetic attitudes have generally been judged by his famous attacks upon the ostentatious display of the Cluniac order, and it is true that these views became law for his own order, at least during his lifetime. His iconophobic bias in regard to the representational arts led to the prohibition of illumination in Cistercian manuscripts and to the exclusion of all imagery, with the exception of painted crucifixes, from the churches of the order. But his most important contribution in aesthetic matters lay in the field of architecture. The disappearance of the representational arts seems to have made possible an unexcelled purity and perfection of construction and architectural proportion. In this respect Bernard and Cistercian buildings are related to the broad artistic current of the time.

The use of geometrical canons is strikingly evident in Cistercian churches.⁴² Augustine's "perfect" ratio of 1:2 usually determined the elevation. The octave ratio also determined the ground plan of the abbey of Fontenay (1130-47), which is the best surviving example of Cistercian architecture, and may have been designed by Bernard himself.⁴³ The bays and side aisles are of equal length and

⁴²von Simson, Gothic Cathedral, p. 48.

⁴³Ibid.

width, and the same dimension is marked off vertically by a stringcourse. Thus, a spatial "cube" is obtained in each bay, an aesthetic impression that recalls the "geometrical harmony" of Boethius.⁴⁴ This "cubic" tendency also appears in the central nave. The facade also describes a square if the buttresses and the upper stringcourse are included, and the distance between the upper and lower stringcourses is determined "according to true measure."⁴⁵ It seems likely that the medieval preference for this proportion may be, in part, connected with the Augustinian preference for the octave and with the role of the square in the thought of nearly all the Christian Platonists. The square is, in this sense, the geometrical representation of the Godhead.⁴⁶

The ratios of the other perfect consonances are also present in Fontenay. In addition to the 1:1 ratio of the crossing, the ratio of the fifth, 2:3, regulates the relation of the width of the crossing to its length, including the choir, and also the relation between the width of the crossing and the total width to nave plus side aisles. The ratio of the fourth, 3:4, defines the relation between the total width of nave plus side aisle and the length of the transept with the chapels included.⁴⁷ Thus, the churches of the Cistercian order demonstrate concrete evidence of the application of Augustine's perfect ratios more clearly than those of any other style of church architecture.

⁴⁴Ibid.

⁴⁵Ibid.

⁴⁶Ibid., p. 49.

⁴⁷Ibid., p. 50.

The main aesthetic and technical features that characterize Cistercian architecture--the unadorned perfection of workmanship and the attention to proportion--are also present in the cathedrals of the Île-de-France.⁴⁸ Therefore, Cistercian architecture and the Gothic Cathedral may be described as two branches growing from the same soil and realizing the same religious and aesthetic postulates, the only difference being that the first is designed for the devotional life of the convent, and the second for that of the diocese.

Light

The affinity between the aesthetics of light and the metaphysical trend of the Middle Ages is even more striking than that of number and proportion. Proportion presupposes a composite structure, whereas light is a simple entity. Proportion endows objects with harmony and order, but light is the source and essence of all visual beauty, since it constitutes the essence of color and at the same time is the external condition of its visibility.⁴⁹

The aesthetics of light may be traced to the Dialogues of Plato, which contain numerous images of luminous quality. The chief characteristics of Plato's "Forms" were radiance, splendor, and brilliance, and the highest example, that of the Good, was compared to the sun. De Bruyne points out that the identification of light with truth is an idea which is also found throughout the gospels; and that Christ is compared

⁴⁸Ibid., p. 58.

⁴⁹de Bruyne, Esthetics, p. 55.

with the day. Furthermore, celestial happiness is represented in the form of an ocean of light.⁵⁰

According to the Platonic metaphysics of the Medieval philosophers, light was the most noble of natural phenomena, because it was the least material, and therefore it was the closest approximation to pure form. Light was, moreover, the creative principle in all things. It was, for the thinkers of the Middle Ages, the principle of value. The objective value of a thing was determined by the degree to which it absorbed and reflected light. Therefore, when we experience delight at the sight of luminous objects, we intuitively grasp their ontological dignity within the hierarchy of beings.⁵¹ The stars, gold, and precious stones are called beautiful because of this quality of luminosity. The development of the stained glass window reflects the same thought.

For the Medieval philosopher light was the most direct manifestation of God. Its divine splendor always remained undivided and indeed unified those of His creatures that accepted it. In the aesthetics of the twelfth and thirteenth centuries light was conceived as the form that all things have in common, the simple essence which imparted unity to all. As an aesthetic value, light, like unison in music, fulfilled that longing for ultimate concord, that reconciliation of one from many, which was the essence of the medieval experience of beauty, as it was the essence of its faith.⁵²

⁵⁰Ibid., p. 17.

⁵¹von Simson, Gothic Cathedral, p. 52.

⁵²Ibid., p. 54.

It is essential to remember that light and harmony were not merely images of heaven and divine light, symbolic, or aesthetic attributes of an object. Medieval metaphysics conceived them as the formative and ordering principle of creation. Light and harmony had precisely this ordering function in the Gothic cathedral.⁵³

Symbol and Analogy

At the basis of all medieval thought was the concept of analogy. All things were created according to the principle of analogy, which established that everything was, to some degree, a manifestation of God--an image, vestige, or shadow of the Creator. The degree to which a thing resembled God, or the degree to which God was present in it, determined its place in the hierarchy of beings. This idea of analogy, according to Gilson, was not merely a poetical play with symbols, but was the only epistemological method considered to be valid by the medieval philosophers.⁵⁴ Nature became an allegory, and every object was the symbol of something beyond.

The symbol, according to Richard of St. Victor (d. 1173) was a gathering of visible forms for the demonstration of the invisible. ("Symbolum est collectio formarum visibilium ad visibilium ad invisibilium demonstrationem.")⁵⁵ By the process of analogy man was led from the symbol to analogical vision, which was the pure and naked

⁵³Ibid., p. 228.

⁵⁴Etienne Gilson, The Spirit of Mediaeval Philosophy (New York: Charles Scribners' Sons, 1940), p. 100.

⁵⁵Richard of St. Victor, In Apocalypsim, Prologus in PL CXCVI, Col. 686.

seeing of divine reality.⁵⁶ Anagogical vision, then, was the ascent or elevation of the mind for supernatural contemplation. ("Anagoge, ascensio sive elevatio mentis ad superna contemplanda.")⁵⁷

The concrete manifestation of the ideas of proportion, light, and symbol is to be found in the Gothic cathedral, which, together with the sculpture adorning it, demonstrates that the material church signifies the spiritual church. ("Ecclesia Materialis significat ecclesiam spiritualem.")⁵⁸ The cathedral is at once a "model" of the cosmos and the image of the Celestial City.

⁵⁶Barbara Nolan, The Gothic Visionary Perspective (Princeton: Princeton University Press, 1977), p. 37.

⁵⁷Richard of St. Victor, In Apocalypsim, *ibid.*

⁵⁸Hans Jantzen, High Gothic: The Classic Cathedrals of Chartres, Reims, Amiens, trans. by James Palmes (New York: Random House, Inc., 1962), p. 170.

CHAPTER III

THE GOTHIC CATHEDRAL

The stone church is first and foremost an architectural form which the medieval writers enjoyed in its materiality. But it is also the symbol of the invisible world, whether it recalls by its round form the closed, complete company of Heaven, or by its cruciform shape the architectural projection of the crucified Christ.⁵⁹

Form

The basic form and constructive character of a High Gothic cathedral may be defined in the following way:

The ground plan, which developed from the early Christian basilica form, consists of a central nave with side aisles and a transept. The eastern portion of the nave forms the choir, which almost invariably terminates in a polygonal apse, or sanctuary, around which the aisles continue. A series of small chapels open out of these aisles, with the central one usually being more developed than the rest. The transept arms generally have rectangular ends, and the west end of the nave is always rectangular. (Figure 1)

The nave is divided from the aisles by a row of piers which support the superstructure, consisting of the triforium and the clerestory.⁶⁰ On the outer sides of the aisles are half-piers, against

⁵⁹de Bruyne, Medieval Aesthetics, p. 196.

⁶⁰Earlier cathedrals had a four stage interior elevation, consisting of the main arcade, the tribune gallery, the triforium, and the clerestory. This was reduced to three in Chartres cathedral, and the three stage elevation became prevalent.

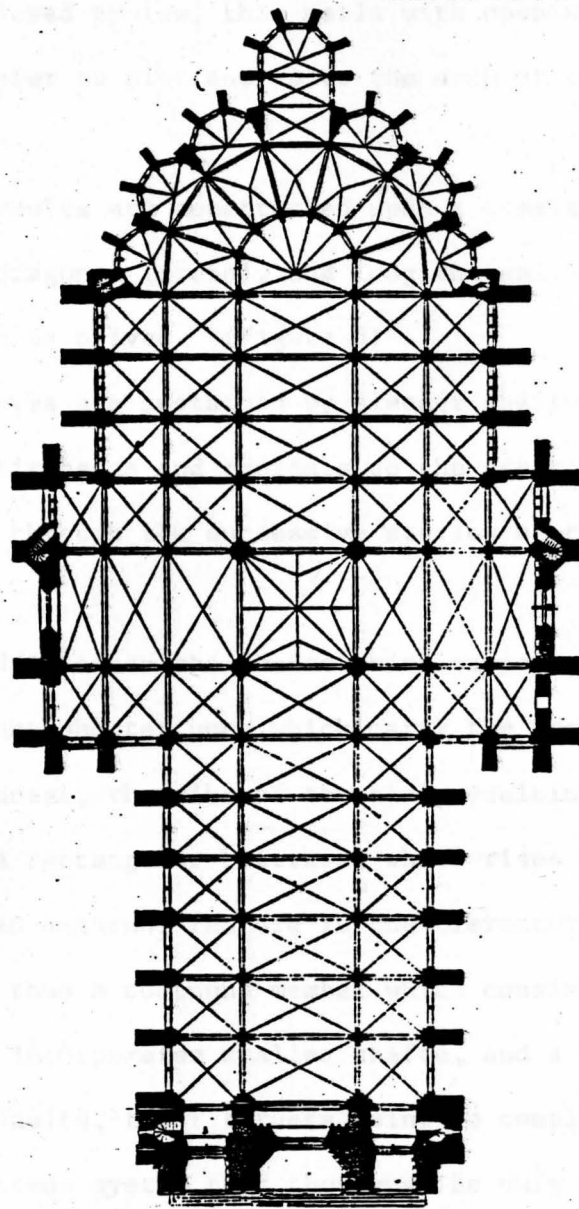


Fig. 1--Ground Plan of Amiens Cathedral.

^aJantzen, High Gothic, p. 56.

which are set the great buttresses of the exterior. The spaces between them are enclosed by low, thin walls with openings above them which extend from pier to pier and up to the arch of the aisle vaulting.

(Figure 2)

The vaults are constructed upon a complete set of ribs-- transverse, diagonal (groin), and longitudinal. These ribs form pointed arches, known as ogives. (Figure 3)

The ribs are sustained by slender shafts, compactly grouped, and bonded by their bases and capitals to the great piers which rise from the pavement through the successive stories of the building to the nave cornice.

In addition to the shafts which support the main ribs of the vault there are shorter ones which carry the archivaults (the arches of the main arcades), the ribs of the aisle vaulting, and the arches of the triforium. A rectangular buttress, which rises through the triforium and becomes an external feature in the clerestory, is added to the pier. Each pier is thus a compound member which consists of a great central column which incorporates smaller shafts, and a buttress. These piers support the vaults, their thrusts being so completely neutralized by the external buttress system that they must be only massive enough to bear the weight of the vaults.

The clerestory buttresses are reinforced by flying buttresses, which are segments of arches which rise from the outer abutments and extend over the aisle roofs. In this way, the ribs, strongly supported by the pier buttresses, and then by the flying buttresses, provided the architects of the Middle Ages with a solution to the problem of vaulting the basilican form. The "broken" arch, with ribs meeting in a point,

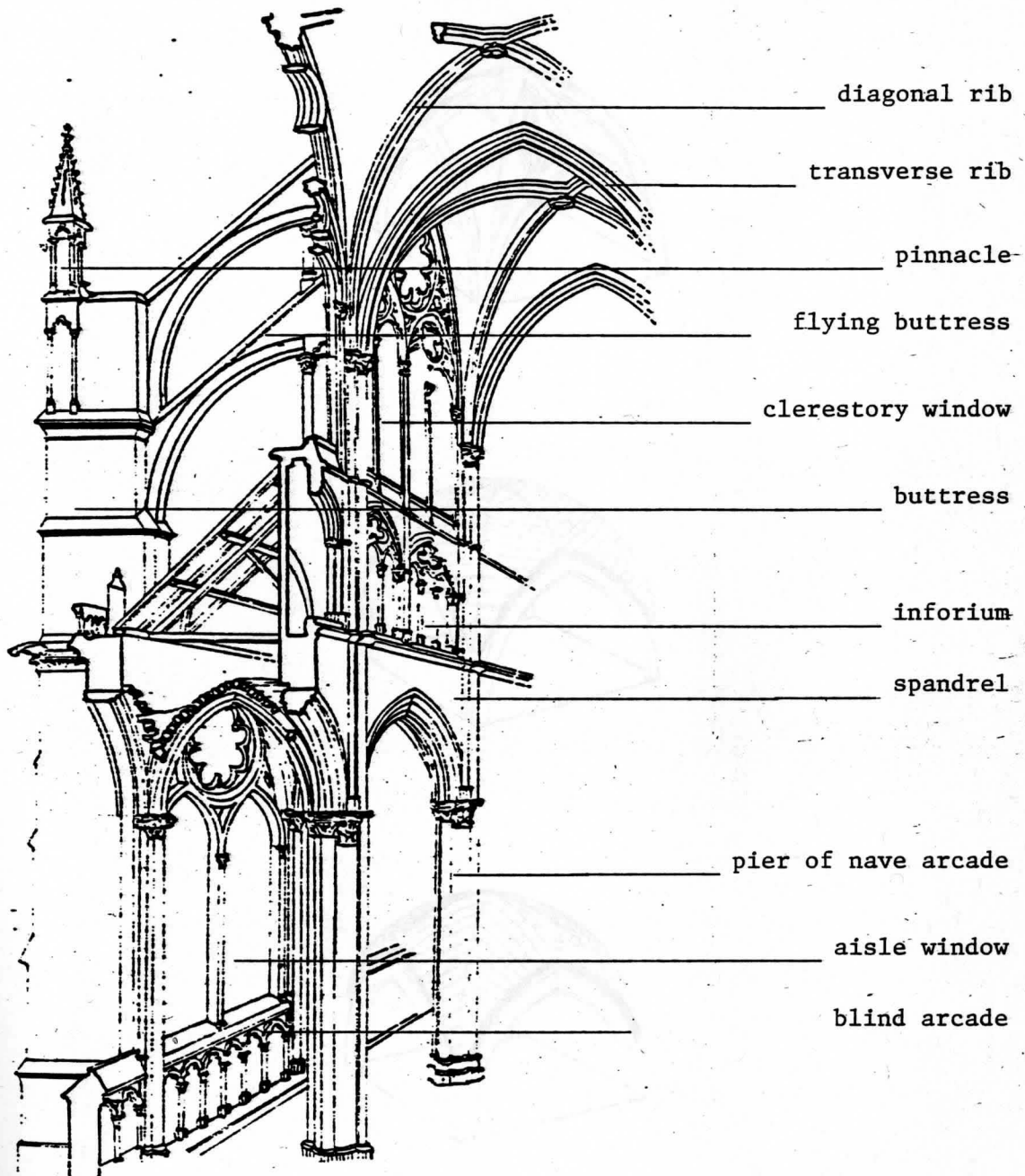


Fig. 2--Diagrammatic section through the nave of Amiens Cathedral showing the names of the various parts of a Gothic cathedral.

^bWim Swaan, The Gothic Cathedral (London: Elek Books, Ltd., 1969), p. 62.

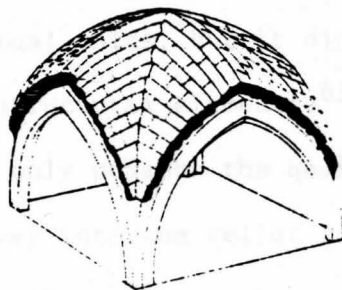
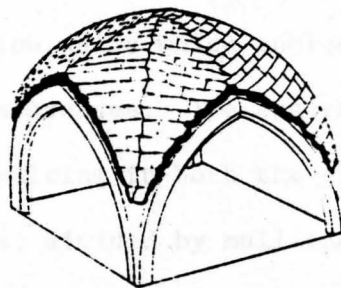
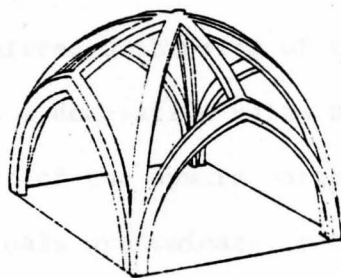


Fig. 3--Method of construction of Gothic vaults.

^cLouis Grodecki, Gothic Architecture, trans. by I. Mark Paris (New York: Harry N. Abrams, Inc., 1977), p. 10.

made it possible to achieve an even height for the crown of the vault when the sides of the ground plan were not equilateral.⁶¹ The vault could now be adapted to a ground plan of any shape. In addition, the use of the pointed arch permitted a thinning of the piers and walls.

The ribbed vault has a decorative value as well as a structural one. It heightens the effect of the upward surge produced by the high, narrow naves where the verticals predominate, prolonging under the vaults the ascending lines of the long delicate shafts which, attached to the piers and walls, mount toward heaven.⁶²

Walls, as such, are almost entirely omitted. The only ones which are retained are the low walls which enclose the ground story, and the spandrels of the various arcades. The spaces between the piers, and beneath the arches of the vaulting in both the clerestory and the aisles, are formed into vast windows, divided by mullions and tracery which support the iron bars to which the glazing is attached. (Figure 4)

The transparent nave wall is, nevertheless, viewed as a continuous partition. The Gothic wall is unique in that it is assembled by associating purely vertical units, but it displays a tier-like horizontal arrangement of structural elements.⁶³ The groups of clustered round shafts not only possess the quality of "verticality", but enter in a particular way into the relief pattern of the wall. Stylistically, the Gothic wall appears to be a continuous partition

⁶¹Jantzen, High Gothic, p. 31.

⁶²Paul Frankl, The Gothic: Literary Interpretations through Eight Centuries, 2 vols (Princeton: Princeton University Press, 1960), Vol. 2, p. 808.

⁶³Jantzen, High Gothic, p. 31.

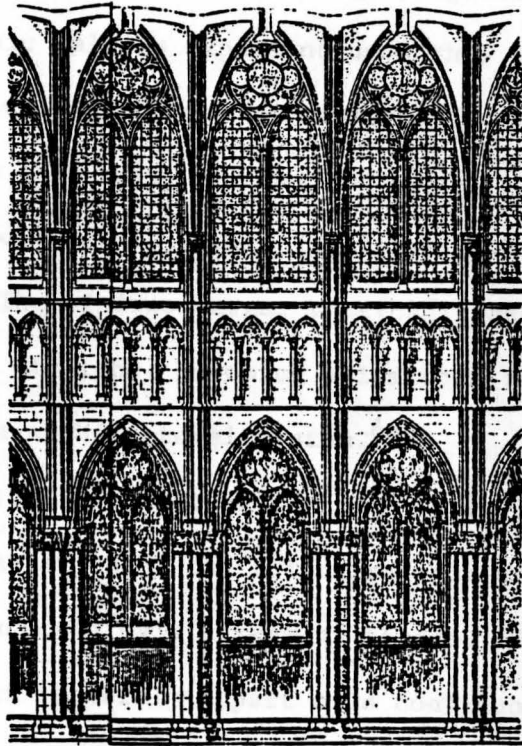


Fig. 4--Gothic windows.

^dJantzen, High Gothic, p. 39.

composed of relief patterns of various depths, which asserts itself as a whole against the vertical elements.⁶⁴ (Figure 5)

Hans Jantzen describes this transparent spatial setting as "diaphanous structure."⁶⁵ He uses this term to define the visual relationship between the plastically modelled wall and the "subsidiary spaces" behind it. "Diaphanous structure" implies that the modelling of the wall is a form of architectural relief projecting from a background of space. The Gothic wall is dependent upon this spatial background acting as a foil, and its effect on the whole of the cathedral interior is obtained only in this way. The entire expanse of the wall is set against a background of space, which is either in darkness or consists of colored light. The windows merge, vertically and horizontally, into a continuous sphere of light, becoming a luminous foil behind the tactile forms of the architectural system.⁶⁶

It is important to remember that the parts of the building which we have isolated--the arcades, the triforium, the clerestory, the rib-vaults--are interconnected by a stream of forces. We can discuss a single window, but it is merely a part of a continuous horizontal stripe, and each window is in itself a whole, divided through the tracery so that each part is a fragment of the whole window. We can view the single bays, but one bay fluctuates into the next one and the nave seems the primary whole inside of which the parts, namely the bays, are formed. Each compartment of each nave is covered with its own rib vault, and

⁶⁴Ibid., p. 38.

⁶⁵Ibid.

⁶⁶von Simson, Gothic Cathedral, p. 4.

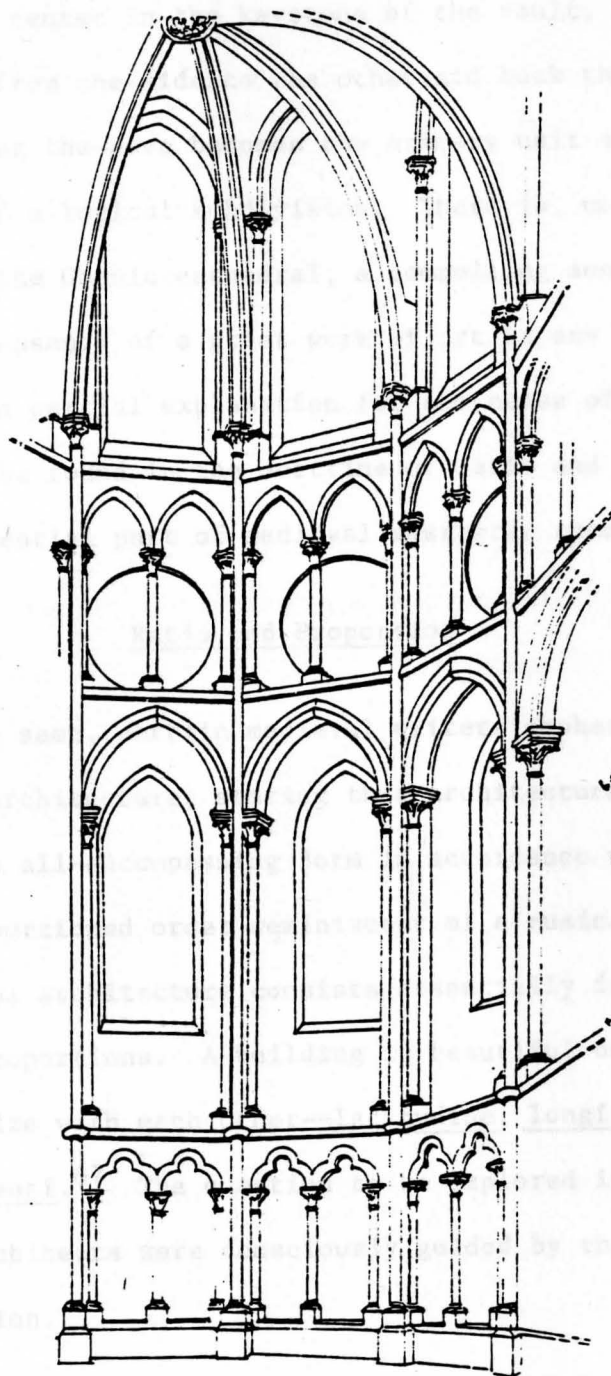


Fig. 5--Structure of an apse of a Gothic cathedral.

^eGrodecki, Gothic Architecture, p. 13.

^fSee Sturges, Aesthetics, p. 184.

^gSee Sturges, Gothic Cathedral, p. 13.

each has its clear center in the keystone of the vault, but the diagonal ribs lead the eye from one side to the other and back through the next compartment, so that the nave becomes the primary unit and the bays seem to be the result of a logical subdivision. There is, underlying the myriad details of the Gothic cathedral, a compelling sense of unity, and, although the essence of a great work of art in any era must always remain a mystery, a partial explanation for the sense of wholeness in the cathedral may be found in the doctrine of ratio and proportion which formed such an essential part of medieval aesthetic theory.

Ratio and Proportion

As we have seen, certain medieval writers emphasized the concept of proportion in architecture, stating that architectural composition is the creation of an all-encompassing form in accordance with an intelligently proportioned order reminiscent of a musical melody or oratory. Beautiful architecture consists essentially in the establishment of correct proportions. A building is beautiful only if its dimensions harmonize with each other--latitudine, longitudine et altitudine congruenti.⁶⁷ The question to be explored is the degree to which medieval architects were consciously guided by the principles of ratio and proportion.

The Architects

The Gothic builders, according to von Simson, were unanimous in paying tribute to geometry as the basis of their art.⁶⁸ Geometry was

⁶⁷de Bruyne, Aesthetics, p. 187.

⁶⁸von Simson, Gothic Cathedral, p. 13.

much more thoroughly taught in the Middle Ages than it is today, and because structural mechanics did not exist as a science before 1600,⁶⁹ the proportions of structural members were described by formulae which were expressed as relations between the sides of the square, the equilateral triangle, the double square, the pentagon, or their multiples. In fact, the Gothic architect developed all magnitudes of his ground plan and elevation from a single dimension by strictly geometrical means. The knowledge of this method for determining architectural proportion was kept a professional secret by the medieval lodges, and was not made public until the fifteenth century when Matthew Roriczer, the builder of Regensburg Cathedral, demonstrated "how to take the elevation from the ground plan" by means of a single square. His method is shown in Figure 6.

In this illustration Roriczer derived the proportions of a pinnacle from a sequence of squares in the following manner.

First, he drew a square the size of the base of the pinnacle. Then he joined the center points of the four sides, thus obtaining a smaller square placed at 45° within the main square. (The length of the side of the smaller square was equal to half the diagonal of the larger square, and therefore the area of the small square was half that of the larger square.) The architect repeated this process until he obtained the requisite number of proportionately smaller squares. His final step was to rectify the squares and place them one within the other with their sides parallel. The lengths of these proportionate squares might

⁶⁹Gerhard Rosenberg, "The Functional Aspect of the Gothic Style," *Journal of the Royal Institute of British Architects*, vol. XLIII (1936), 364.

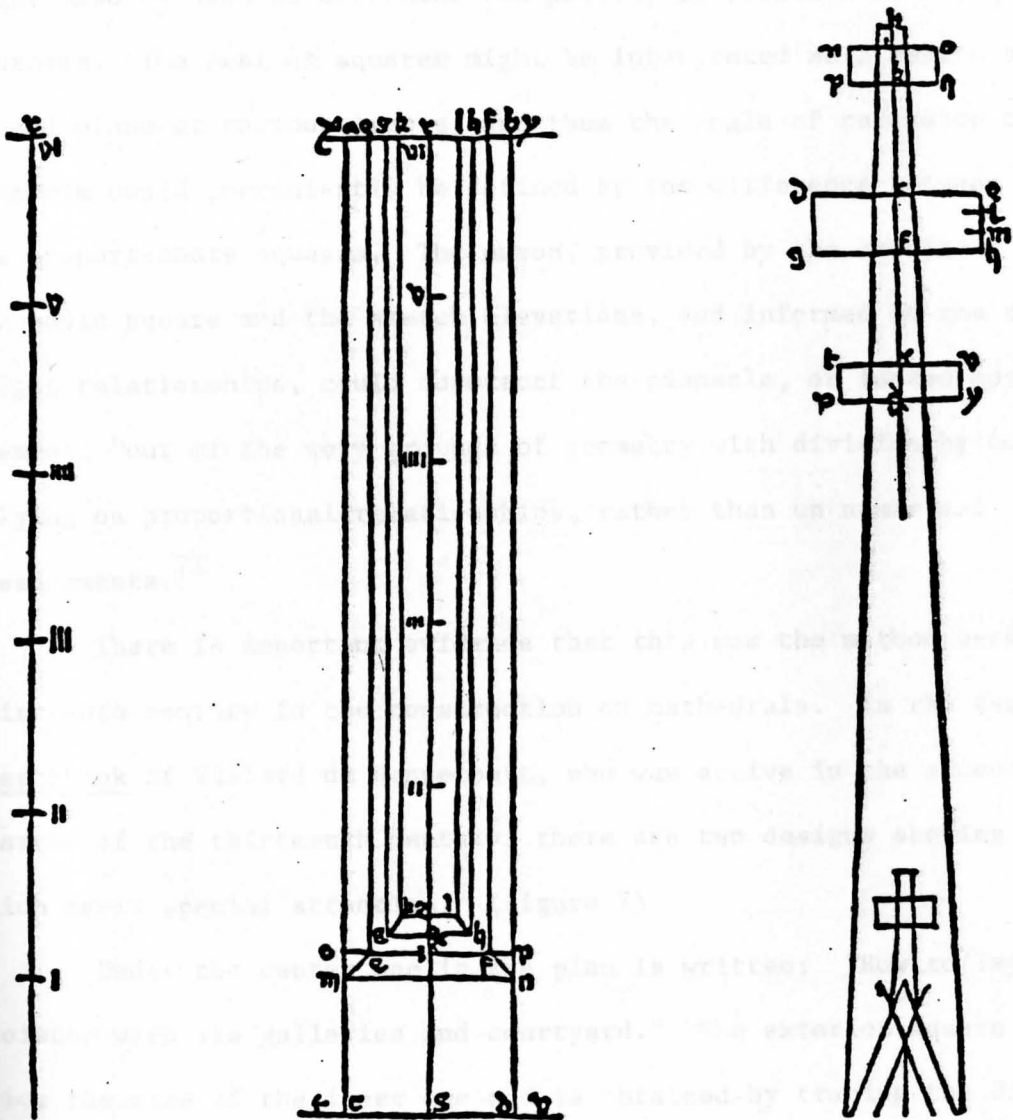
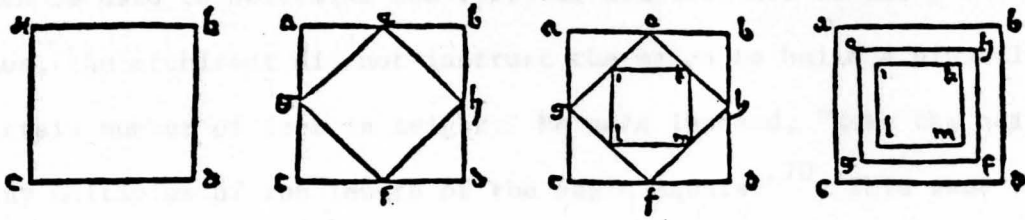


Fig. 6--Matthew Roriczer: Ground plan and elevation of a pinnacle.

von Simson, Gothic Cathedral, p. 17.

then be used to determine the vertical measurements of the pinnacle. Thus, the architect did not instruct the mason to build a pinnacle a certain number of feet in height. He said instead, "Make the height so many multiples of the length of the basic square."⁷⁰ This same length might also be used to determine the precise disposition of decorative features. The nest of squares might be interpreted as a series of ground-plans at various levels, and thus the angle of recession of the pinnacle could conveniently be defined by the difference between two of the proportionate squares. The mason, provided by the architect with the basic square and the sketch elevations, and informed of the required height relationships, could construct the pinnacle, or indeed any other element, "out of the very grounds of geometry with division by compasses", relying on proportional relationships, rather than on numerical measurements.⁷¹

There is important evidence that this was the method used in the thirteenth century in the construction of cathedrals. In the famous Sketchbook of Villard de Honnecourt, who was active in the second quarter of the thirteenth century, there are two designs showing squares which merit special attention. (Figure 7)

Under the center one in the plan is written: "How to lay out a cloister with its galleries and courtyard." The exterior square is twice the size of the inner one and is obtained by tracing the diagonal of the smaller square and then constructing a square having this diagonal as one of its sides. The new square is twice as large as its predecessor.

⁷⁰Wim Swaan, The Gothic Cathedral (London: Elek Books, Ltd., 1969), p. 101.

⁷¹Ibid.

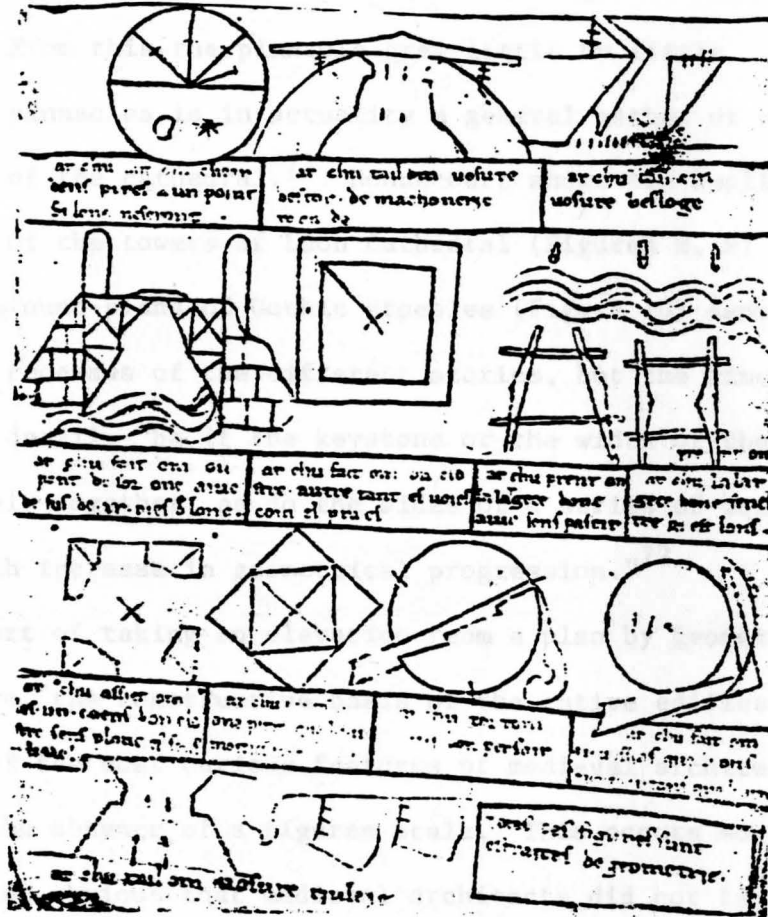


Fig. 7--Drawings by Villard de Honnecourt.

⁸Theodore Bowie, ed., The Sketchbook of Villard de Honnecourt
 (Bloomington: Indiana University Press, 1959), p. 121.

The resemblance between Honnecourt's drawing and the method described by Roriczer is unmistakable. He constructed one square inside another following the method employed by Honnecourt, and in this inner square he constructed a third one; he then rectified these squares so that they fit one within another like the rectangle in Honnecourt's Sketchbook. From this the pinnacle grew little by little. This method of designing pinnacles is in actuality a general method of designing all of the parts of the cathedral.⁷² Honnecourt shows its application in his drawings of the towers of Laon Cathedral (Figures 8, 9) and studies of medieval ground-plans of Gothic steeples (Figure 10) demonstrate that not only the recesses of the different stories, but the dimensions of every single detail, "be it the keystone or the width of the walls, hang proportionately together, as do the sides of a series of squares the areas of which increase in geometrical progression."⁷³

The art of taking an elevation from a plan by geometrical methods was, therefore, the constructive basis of the entire edifice.

One of the most curious features of medieval architectural drawings is the absence of a figures scale. This occurs so consistently that it becomes obvious that medieval architects did not favour the scaling of drawings. Instead, the medieval builders made use of the module, that is, a convenient unit of length used consistently as the basis for planning the measurements of the structure.⁷⁴ Simple fractions

⁷²Jean Gimpel, The Cathedral Builders (New York: Grove Press, Inc., 1961) p. 125.

⁷³von Simson, Gothic Cathedral, p. 16.

⁷⁴Swaan, Gothic Cathedral, p. 101.

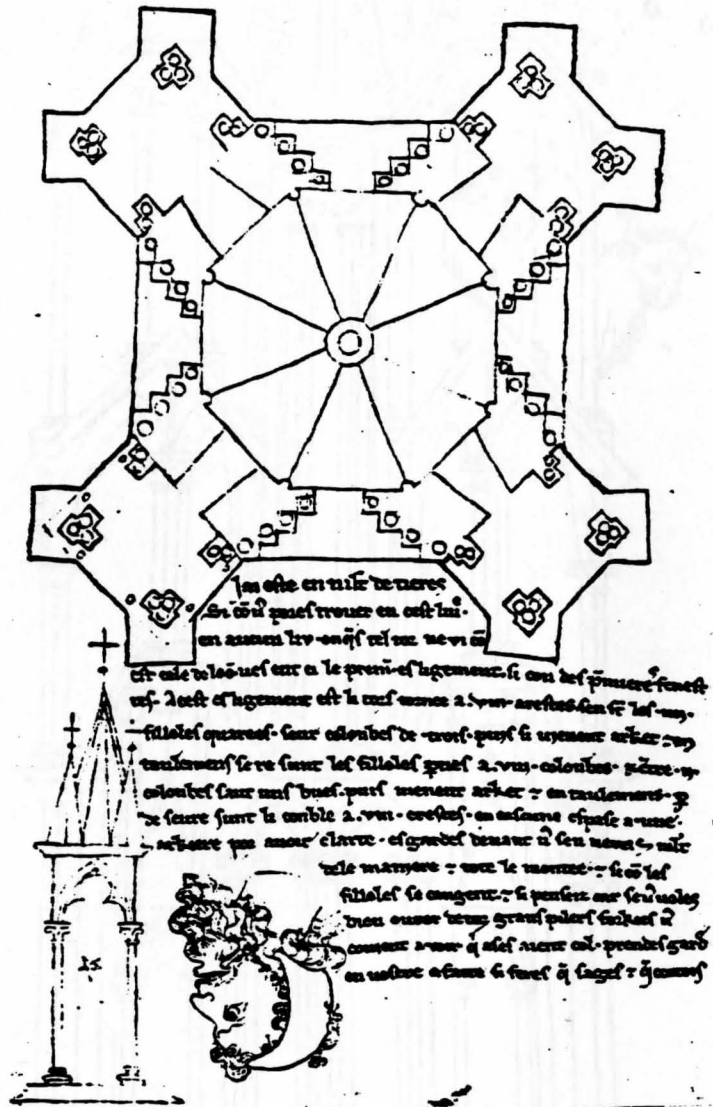


Fig. 8--Drawings by Villard de Honnecourt.

^hIbid., p. 89.

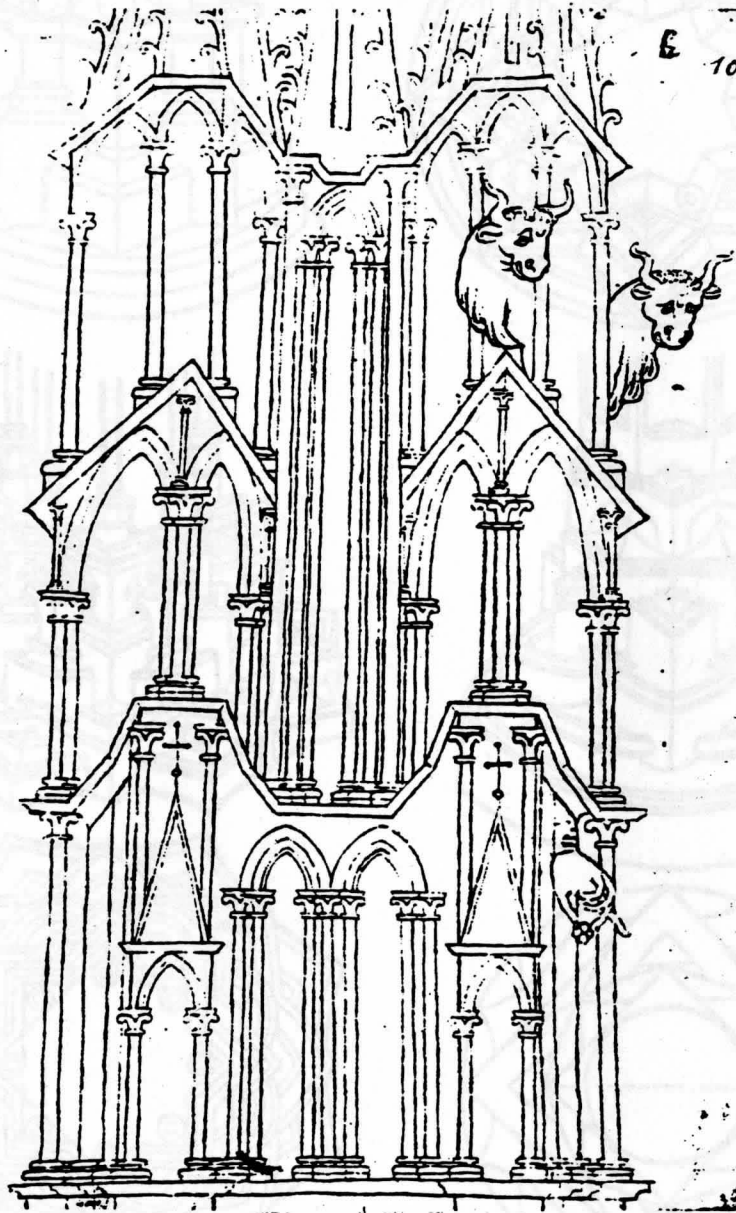


Fig. 9--Drawing by Villard de Honnecourt.

ⁱIbid., p. 91.

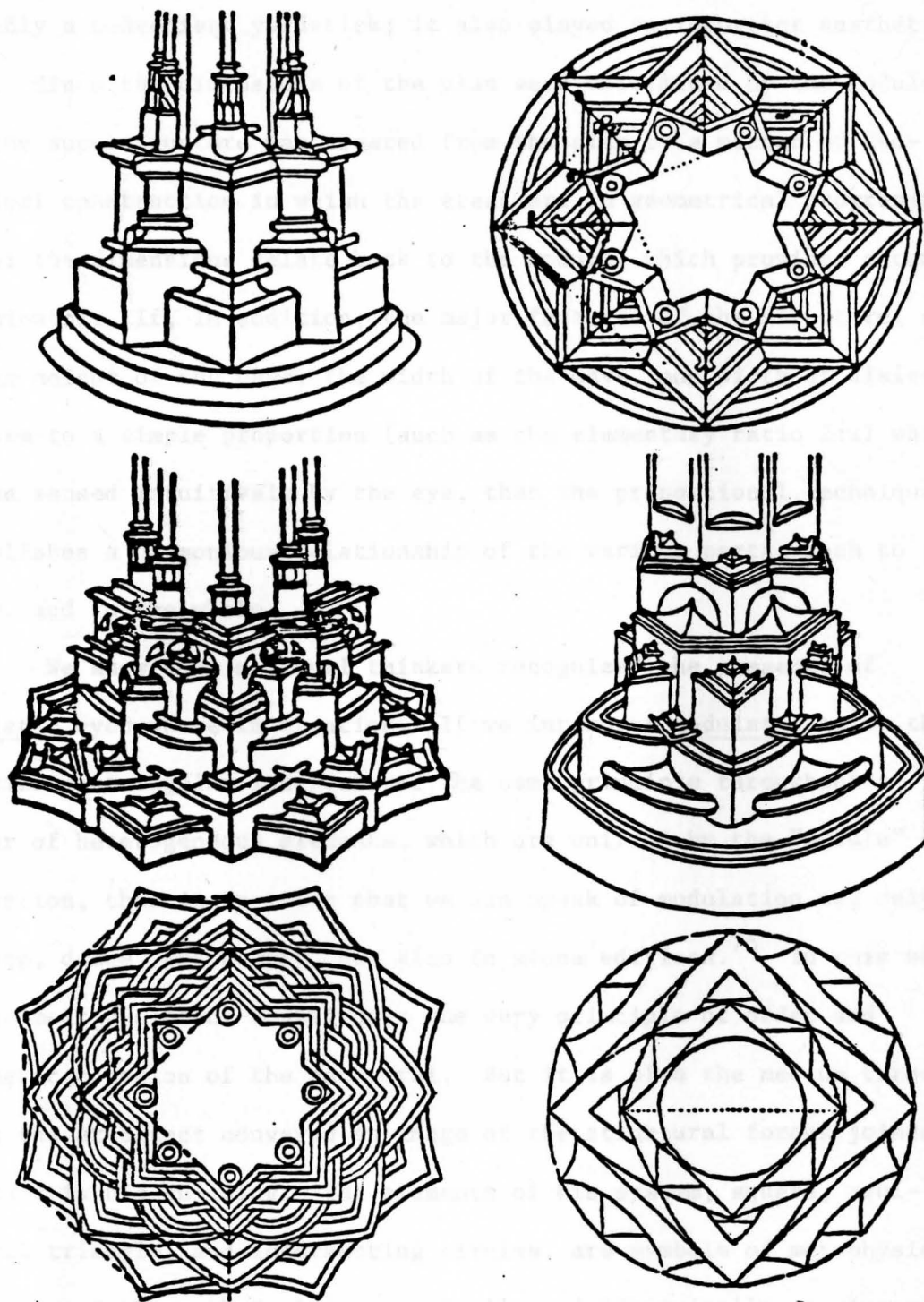


Fig. 10--Ground plans and elevations of Gothic canopy supports.

J. von Simson, Gothic Cathedral, p. 15.

of the module provided a series of smaller dimensions. The module was not only a convenient yardstick; it also played an important aesthetic role. Since the dimensions of the plan were determined by the module, and the superstructure was created from the plan by a method of geometrical construction in which the areas are in geometrical progression, all of the dimensions relate back to the module, which provides a common denominator. If, in addition, the major features of the structure, such as the height of the nave, the width of the nave, and width of aisles, conform to a simple proportion (such as the elementary ratio 2:1) which can be sensed intuitively by the eye, then the proportional technique establishes a harmonious relationship of the various parts, each to the other, and to the whole.

We know that medieval thinkers recognized the presence of modulatio everywhere in creation. If we interpret modulatio to be the repetition at regular intervals of the same principle throughout a number of heterogeneous elements, which are unified by the "module" or proportion, then it is clear that we can speak of modulation not only in song, dance, and poetry, but also in stone edifices.⁷⁵ In this way the geometric element constitutes the very principle of order and aesthetic cohesion of the cathedral. But it is also the medium through which the architect conveyed an image of the structural forces joined together in his building. The elements of his system, square, equilateral triangle, and intersecting circles, are symbols of metaphysical meaning, and the cathedral is, mystically and liturgically, an image of heaven.

⁷⁵de Bruyne, Aesthetics, p. 53.

Gothic Light

The canons of geometry lent to Gothic architecture the unique relationship between structure and appearance, and fulfilled the philosophical and theological dictates concerning ratio and proportion. But Gothic space is not merely an enclosed volume to be geometrically defined. Indeed, Gothic space is a function of light. "It is transfigured by light."⁷⁶ This concept was stated unequivocally in the medieval texts to which the builders had access. Hence, the architects were concerned with light as a spiritual power, capable of exercising an influence as inspiring as architectural form. The quality, abundance and distribution of light contributed decisively to the design of the interior of the classic Gothic cathedrals.

For medieval man, Light was God, and the interior of His church signified and prefigured the heavenly Jerusalem whose walls, according to the Book of Revelation, were made of precious stones. The function of the stained-glass window was to admit light and to transmute it, investing it with the hues of various gems which, according to the Bible, were endowed with magical virtues corresponding to specific properties of the soul. The art of the window is akin to that of the reliquaries and chalices, and of the altar in the sacred edifice. Like the enamels on pulpits, crosses, and reliquaries, the window had a didactic purpose. It proclaimed the Christian verities, and its imagery led the thoughts of the congregation along the path of holy meditation to true belief.

⁷⁶Louis Grodecki, Gothic Architecture, trans. by I. Mark Paris (New York: Harry N. Abrams, Inc., 1977), p. 20.

The stained-glass windows bathe the Gothic interior in a dark, reddish-violet light, which is not "natural" light. But the "unnaturalness", when experienced in conjunction with the inspiring power of the architecture, becomes a "supernatural" light.⁷⁷ The windows are structurally and aesthetically not mere openings in the wall to admit light, but are transparent walls. Just as the "verticalism" of Gothic linear values seems to reverse the movement of gravity, so the stained-glass window seemingly denies the impenetrable nature of matter, receiving its visual existence from an energy that transcends it. Light, which usually is concealed by matter, appears as the active principle. Matter becomes aesthetically real only insofar as it partakes of, and is defined by, the luminous quality of light.⁷⁸

The close link between the metaphysics of light and the luminosity of the Gothic cathedral is clearly documented by Abbot Suger, who is credited with the birth of Gothic style in his abbey church at St. Denis. It was in this structure that the potential of the Norman cross ribbed vault was first realized. By using the pointed arch, vaults could be built which enabled the clerestory windows to be heightened considerably, and Suger was able to create a zone of "continuous light."⁷⁹ This enabled him to realize his dream of imposing unity on the liturgical ceremony, by means of omnipresent light. "From the choir

⁷⁷Jantzen, High Gothic, p. 69.

⁷⁸von Simson, Gothic Cathedral, p. 3.

⁷⁹Abbot Suger, On the Abbey Church of St. Denis and Its Art Treasures, trans. by Erwin Panofsky, 2nd ed. Gerda Panofsky-Soergel (Princeton: Princeton University Press, 1979), De Administratione, XXVIII, p. 51.

to the entrance of the church no obstacle impeded the flow of light which, filling the whole interior, converted the church into a symbol of the process of Creation."⁸⁰

Suger was fascinated by light. The inscription he placed on the splendid, gilded-bronze doors of his abbey called attention to the beauty of the light and to its theological significance. The beholder was urged to partake of the power of the beauty to "illuminate the mind so that it might travel through the true lights to the True Light, where Christ is the true door."⁸¹ Anticipating the completion of the nave in the translucent style, he wrote: "Once the new rear part is joined to the part in front, the church shines with its middle part brightened. For bright is that which is brightly coupled with the bright. And bright is the noble edifice that is pervaded by the new light."⁸² Lux nova also refers to Christ and thus to the symbolic or "anagogical" significance of the physical light.

The extent to which theology actually influenced the architectural design of Suger's church is best shown by his windows. Suger called these windows "most sacred," and referred to the light they admitted as "miraculous."⁸³ He chose their subjects and interpreted meaning by accompanying inscriptions. The windows narrate by supplying the data of a doctrinal thesis in the same way as a professional lecture.

⁸⁰Georges Duby, The Europe of the Cathedrals, 1140-1280, trans. by Stuart Gilbert (Geneva: Editions d'Art Albert Skira, 1966), p. 15.

⁸¹Abbot Suger, De Administratione, XXVII, p. 49.

⁸²Ibid., p. 47.

⁸³Ibid.

The seminal text is located in the central medallion. Around it are presented subsidiary figurations culled from the Bible, which in an interplay of complementary allusions help the beholder to comprehend its message, and to proceed from its literal to its mystical significance. Because this demonstration follows the method of Scholastic Logic, the imagery of the window proves, in visual terms, the strict coherence of the Christian dogma.⁸⁴

Most of the subjects are taken from the Old Testament, although two represent allegories that occur in the Book of Revelation and in the Epistles of St. Paul. All of these images suggest the theology and exegesis of the Dionysian tradition, which asserts that God has revealed himself, directly in the Incarnation, obscurely in nature and the metaphors of the Bible. Medieval man thought that he must seek to grasp Him in and through these, by perceiving the divine light that illuminates them. For Suger the translucent panels were "vested" with sacred symbols, and were like veils at once shrouding and revealing the ineffable. His view is best shown by his selection of the scene of Moses appearing veiled before the Israelite. St. Paul had used this image to elucidate the distinction between the "veiled" truth of the Old Testament and the "unveiled" truth of the New. Suger's inscription stated: "What Moses veiled is unveiled by Christ's teaching."⁸⁵

Von Simson believes that Suger's interpretation epitomized his very world view, to which the entire cosmos appeared like a veil

⁸⁴Duby, Europe of Cathedrals, p. 162.

⁸⁵Ibid., p. 19.

illuminated by the divine light.⁸⁶ This world view was essentially that of his century, and Suger's church is the perfect paradigm of its art--an art of clarity and of progressive illumination.

Sculpture

To the men of the Middle Ages art was didactic. The stained-glass windows of the church and the sculpture of the porches taught the history of the world from the creation, the dogmas of religion, the examples of the saints, the hierarchy of the virtues, and the range of the sciences, arts, and crafts, providing a summary of history and a mirror of the moral life. There the humble, the simple, and the ignorant learned through their eyes almost all they knew of their faith. The great sculptural figures, so spiritual in conception, seemed to bear witness to the truth of the Church's teaching. The countless statues, arranged in scholarly design, were symbols of the marvellous order that the genius of St. Thomas Aquinas created in the world of thought. Through the medium of art the loftiest concepts of the theologian and scholar penetrated to some extent the minds of even the humblest of the people.⁸⁷

Medieval art was, first and foremost, a sacred writing. It was the responsibility of the artist to learn this script, because art was considered to be one form of the liturgy. Here "the mind of the

⁸⁶von Simson, Gothic Cathedral, p. 121.

⁸⁷Emile Mâle, The Gothic Image (New York: Harper & Row, 1958), p. vii.

theologian, the instinct of the people, and the keen sensibility of the artist all collaborated."⁸⁸

Art was a script, a calculus, and a symbolic code. Everything depicted was thought to partake of the spiritual world beyond the physical reality. Men were encouraged to define "types", and to determine the role assigned to them by the Creator, for Scholastic philosophy taught that each individual, qua individual, belonged to a species whose type form was immanent ante rem in the mind of God. The task of the artist adorning the cathedral was to create that specific form--not its individual "accidents." He must therefore not only sort out the visual data, but he must also bring his reasoning power to bear on them. For God's mind, like man's proceeds logically, and the forms it engenders are as precise as rays of light, that is to say, geometrically ordered.⁸⁹ This concept is reflected in the Sketchbook of Villard de Honnecourt, where figures of animals and of men wrestling or casting dice are built up from triangles, squares, and curves, like the architecture of the cathedral as a whole. This rationalizing treatment brings out the underlying form, stripped of accidentals, which is, for the theologian, the true reality of the individual. Gothic imagery was accordingly subjected to geometrical discipline.⁹⁰

Medieval iconography extended its obedience to the rules of "sacred mathematics" to the position, grouping, and number of statues.

⁸⁸Ibid., p. 4.

⁸⁹Duby, Europe of Cathedrals, p. 128.

⁹⁰Ibid.

These were thought to be a reflection of the celestial hierarchy, while symmetry was the expression of a mysterious inner harmony.⁹¹

These ideas were not the exclusive property of the philosophers and theologians, but were shared by the mass of the people whose minds they had permeated through the teaching of the Church. The symbolism of the church services familiarized the faithful with the symbolism of art. As Emile M^ále remarks, "Christian liturgy like Christian art is endless symbolism, and both are manifestations of the same genius."⁹²

Thus, the cathedral became a compendium, didactic and admonitory, of the worlds of nature, the mind, and the spirit, past, present, and future, culminating in the awesome prophecies of the Apocolypse, the Last Judgment, and the establishment of the Heavenly Jerusalem, of which the cathedral was the embodiment on earth. Each detail of imagery occupied a definite and logical position in the powerful unity which dominated the whole. It was never by chance that one subject was presented in a particular window; nor could two statues of the facade be transposed without disturbing the entire scheme of the iconography. The Gothic artist was able to conceive a vast unity of composition that must rank as one of the most impressive achievements of the history of art, and to imprint upon the whole a depth of inner poetic meaning and symbolism which expresses the spirit of Scholastic philosophy.

⁹¹M^ále, Gothic Image, p. 9.

⁹²Ibid., p. 15.

CHAPTER IV

THE SCHOLASTIC METHOD AND THE GOTHIC CATHEDRAL

Introduction

During the concentrated phase of the synchronous development of High Gothic philosophy, architecture, and music, that is between 1130-40 and about 1270, it is possible to observe a connection between Gothic art and Scholasticism which is more concrete than mere parallelism and yet more general than those individual influences which are inevitably exerted on painters, sculptors, or architects by aesthetic theoreticians. As the eminent art historian Erwin Panofsky remarks, this connection is a genuine cause-and-effect relationship. It comes about by diffusion rather than by direct impact. The cause is what might be called a mental habit; or what might be defined in its precise Scholastic sense as a "principle that regulates the act," (principium importans ordinem ad actum).⁹³

This was a mentality which deemed it necessary to make faith clearer by use of reason, and to make reason clearer by an appeal to the imagination, and to make imagination clearer by an appeal to the senses.⁹⁴ This preoccupation affected even philosophical and theological literature in that the intellectual articulation of the subject matter implied the acoustic articulation of speech by recurrent phrases, and the

⁹³Erwin Panofsky, Gothic Architecture and Scholasticism. (New York: Meridian Books, 1958), p. 20.

⁹⁴Ibid., p. 38.

visual articulation of the written page by rubrics, numbers, and paragraphs. This need for clarity affected all of the arts directly. Music became articulated through an exact and systematic division of time, just as the visual arts and architecture became articulated through an exact and systematic division of space. The technique which is reflected in the philosophical writings, the visual arts, music, and architecture is known as the Scholastic method.

This method might be viewed as an ensemble of fixed rules--rules which provided the scaffolding for the cathedrals, the polyphonic music, and the Summae of the Gothic age. For the creative artists and the philosophers of the Scholastic tradition these rules were not conventional imperatives imposed upon art from without, but "the ways of operation peculiar to art itself, the ways of working reason, ways high and hidden."⁹⁵ Jacques Maritain points out that it is not only a question of material processes, but also of the means and ways of operation of the intellectual sphere which the artist used to attain the end of his art. His conformity with a higher rule and a hidden order created that kind of conformity and intimate proportion which the Schoolmen called "connaturality". Logic, Music, and Architecture respectively grafted the syllogism in the logician, harmony in the musician, and equilibrium of masses in the architect.⁹⁶

⁹⁵Jacques Maritain, Art and Scholasticism. (New York: Charles Scribner's Sons, 1962), p. 38.

⁹⁶Ibid., p. 39.

The Scholastic Method

Everything that medieval man knew concerning divine revelation, and much of what he believed in other respects, was transmitted by the authorities (auctoritates). These were considered to be, primarily, the canonical books of the Bible, which furnished arguments "intrinsic and irrefutable" (proprie et ex necessitate). Also, the teachings of the Fathers of the Church furnished arguments which were considered to be "intrinsic", though merely "probable". The arguments of the philosophers were "not intrinsic" (extranea), and were, therefore, also merely probable. It is obvious that these authorities, even certain passages of Scripture itself, often conflicted with one another. The philosophers and churchmen set out to interpret and reinterpret them over and over until they could be reconciled. This had been done by theologians for centuries. But the problem of reconciliation was not posed as a matter of principle until Peter Abelard (1079-1142) wrote his famous treatise, Sic et Non (c. 1122).⁹⁷

Sic et Non contained a relatively short prologue explaining its purpose and giving rules for the discussion of the subject matter of the treatise, which consisted of a series of texts from Scripture and the Fathers on 150 theological points, arranged in groups that appeared to be mutually contradictory. The essence of the work is the exposition of methodical doubt,⁹⁸ for, as Abelard wrote in the Prologue, "Careful and frequent questioning is the basic key to wisdom," and, "By doubting we

⁹⁷Martin Grabmann, Geschichte der scholastischen Methode, 2 vols. (Graz: Akademische Druck- u. Verlagsanstalt, 1957), Vol. 2, p. 171.

⁹⁸David Knowles, The Evolution of Medieval Thought. (New York: Vintage Books, 1962), p. 125.

come to questioning, and by questioning we perceive the truth."⁹⁹ He further challenged, in his Introduction to Theology: "Now therefore it remains for us, after having laid down the foundation of authority, to place upon it the buttresses of reasoning."¹⁰⁰

In the introduction to Sic et Non Abelard laid down the basic principles of textual criticism, but he refrained from proposing solutions. It was inevitable, however, that such solutions would be worked out, and this procedure became a more and more important part, perhaps the most important part, of the Scholastic method. Roger Bacon, observing the diverse origins of this Scholastic method, reduced it to three components: "division into many parts as do the dialecticians; rhythmical consonances as do the grammarians; and forced harmonizations (concordiae violentes) as used by the jurists."¹⁰¹

It was this technique of reconciling the seemingly irreconcilable, which was perfected into a fine art by the assimilation of Aristotelian logic, that determined the content and form of academic instruction, the

⁹⁹Peter Abelard, Sic et Non, ed. by Blanche B. Boyer and Richard McKeon (Chicago: University of Chicago Press, 1976), p. 103. "Haec quippe prima sapientiae clavis definitur assidua scilicet seu frequens interrogatio; ...Dubitando quippe ad inquisitionem venimus; inquirendo veritatem percipimus."

¹⁰⁰Peter Abelard, Opera Omni, in PL CLXXVIII, Col. 980. "...cum quis me fidelium vel virtute rationis, vel auctoritate Scripurae correxerit."

¹⁰¹J. S. Brewer, ed. Rerum Brittannicarum Medii Aevi Scriptores, Rogeri Baconis Opus Minus (London: Rolls House, 1857; Reprint edition: Kraus Reprint Ltd., 1965), p. 323. "Quae fiunt in textu principaliter legendo et praedicando, sunt tria principaliter; scilicet, divisiones per membra varia, sicut artistae faciunt, concordantiae violentes, sicut legistae utuntur; et consonantiae rythmicae, sicut grammatici."

ritual of the public disputationes de quolibet, and, most significantly, the process of argumentation in the Scholastic writings themselves.

The great treatises were organized according to a logical system so that the reader was led, step by step, from one proposition to another. The whole was divided into partes which could be divided into smaller partes, and these into membra, quaestiones or distinctiones, and these into articuli. Within the articuli the discussion continued according to a dialectical scheme which involved further subdivision, and almost every concept was split up into two or more meanings, according to its varying relationship to the others. Sometimes a number of membra, quaestiones, or distinctiones were joined together. The first of the three partes that constitute Thomas Aquinas' Summa Theologiae which is a marvelous example of logic and Trinitarian symbolism, is an excellent case in point.¹⁰²

Every topic, that is, the content of every articulus in the Summa Theologiae, had to be formulated as a quaestio. The discussion then began with the positioning of one set of authorities (videtur quod...) against the other (sed contra). The argument proceeded to the solution (respondeo dicendum...), and was followed by an individual critique of the arguments rejected (ad primum, ad secundum, etc.)

The following example, taken from the Summa Theologiae, illustrates this constructive principle.

WHETHER CREATION ENTERS INTO THE WORKS OF NATURE AND ART?

We proceed thus to the Eighth Article:--

Objection I. It would seem that creation enters into the works of nature and art. For in every operation of nature and art some form

¹⁰²Panofsky, Gothic Architecture, p. 32.

is produced. But it is not produced from anything, since matter has no part in it. Therefore it is produced from nothing; and thus in every operation of nature and art there is creation.

Objection 2. Further, the effect is not more powerful than its cause. But in natural things the only agent is the accidental form, which is an active or a passive form. Therefore the substantial form is not produced by the operation of nature; and therefore it must be produced by creation.

Objection 3. Further, in nature like begets like. But some things are found generated in nature by a thing unlike to them; as is evident in animals generated through putrefaction. Therefore their form is not from nature, but by creation. The same reason applies to other things.

Objection 4. Further, what is not created is not a creature. If therefore in nature's productions there were not creation, it would follow that nature's productions are not creatures; which is heretical.

On the contrary, Augustine distinguishes the work of propagation, which is a work of nature, from the work of creation.

I answer that, This question arises because of forms. Some said that forms do not come into existence by the action of nature, but previously exist in matter; for they asserted that forms are latent. This arose from ignorance concerning matter, and from not knowing how to distinguish between potentiality and act. For since forms pre-exist in matter potentially, they asserted that the forms pre-existed absolutely and without qualification. Others, however, said that the forms were given or caused by a separate agent by way of creation, and, accordingly, that to each operation of nature is joined creation. But this opinion arose from ignorance concerning form. For those who held it failed to consider that the form of a natural body is not itself subsisting, but is that by which a thing is. And, therefore, since to be made and to be created belong properly to a subsisting thing alone, as was shown above, it does not belong to forms to be made or to be created, but to be concreated. What, properly speaking, is made by the natural agent is the composite, which is made from matter.

Hence creation does not enter into the works of nature, but for the operation of nature something is presupposed.

Reply Objection 1. Forms begin to be actual when the composites are made, not as though they are themselves made directly, but only indirectly.

Reply Objection 2. The active qualities in nature act by virtue of substantial forms: and therefore the natural agent produces its like not only according to quality, but according to species.

Reply Objection 3. For the generation of imperfect animals, a universal agent suffices, and this is to be found in the celestial power to which they are assimilated, not in species, but according to a kind of analogy. Nor is it necessary to say that their forms are created by a separate agent. However, for the generation of perfect animals, the universal agent does not suffice, but a proper agent is required, acting as a univocal generator.

Reply Objection 4. The operation of nature takes place only on the presupposition of created principles; and thus the products of nature are called creatures.¹⁰³

This method of procedure derived from the raison d'être of Early and High Scholasticism which was to establish the unity of truth. The men of the twelfth and early thirteenth centuries attempted the task of writing a peace treaty between faith and reason, and their goal was the elucidation of faith by the use of reason. This could be done only through a system of thought complete and self-sufficient within its own limits, and it must be presented in a literary structure which would elucidate the very processes of reasoning to the reader's imagination, just as reasoning was intended to elucidate the very nature of faith to his intellect. This accounts for the formalism of Scholastic writing which reached its climax in the classic Summa with its three requirements of (1) totality (sufficient enumeration), (2) arrangement according to a system of homologous parts and parts of parts (sufficient articulation), and (3) distinctness and deductive cogency (sufficient interrelation).¹⁰⁴

¹⁰³Anton C. Pegis, ed. Basic Writings of Saint Thomas Aquinas, 2 vols. (New York: Random House, 1944), vol. 1, p. 445.

¹⁰⁴Panofsky, Gothic Architecture, p. 31.

The Summa and the Cathedral

Like the Summa, the Gothic cathedral aimed at "totality," for in its imagery, it sought to embody the whole of Christian knowledge-- theological, moral, natural, and historical. Similarly, in structural design it sought to synthesize all of the major motifs, finally achieving an unparalleled balance between the basilica and the central plan type.¹⁰⁵

The second requirement of Scholastic writing, "arrangement according to a system of homologous parts and parts of parts," is clearly expressed in the uniform division and subdivision of the whole structure. The rib vault was developed so that the vaults of even the apse, the chapels, and the ambulatory no longer differed in kind from those of the nave and transept, as they had in Romanesque churches. And instead of the contrast which normally existed between tripartite naves and undivided transepts, or cinquepartite naves and tripartite transepts, there was now tripartition in both cases. In addition, instead of disparity in size or type of covering between the bays of the high nave and those of the side aisles, there was the "uniform travée", in which one rib-vaulted central bay connected with one rib-vaulted aisle bay on either side. In this way the whole was composed of the smallest units, which were homologous in that they were all triangular in groundplan and in that each of these triangles shared its sides with its neighbors. Panofsky points out that these units may be compared to the articuli of the Summa.¹⁰⁶

¹⁰⁵Ibid., p. 44.

¹⁰⁶Ibid., p. 46.

As a result of this homology we perceive a correspondence to the hierarchy of the "logical levels" in a Scholastic treatise. By dividing the structure itself, as was customary during the period, into three main parts, the nave, the transept, and the chevet (which comprises the fore-choir and the choir proper), and distinguishing, within these parts, between high nave and side aisles, on the one hand, and between apse, ambulatory, and hemicycle of chapels, on the other, it is possible to observe that analogous relations obtain. There is a correspondence between each central bay, the whole of the central nave, and the entire nave, transept, or fore-choir, respectively. Secondly, there is a relationship between each side aisle bay, the whole of each side aisle, and the entire nave, transept, or fore-choir, and between each sector of the apse, the whole apse, and the entire choir. In addition, there is a correspondence between each section of the ambulatory, the whole ambulatory and the entire choir; and finally, between each chapel, the whole hemicycle of chapels, and the entire choir.¹⁰⁷

This procedure of progressive divisibility affected the entire edifice down to the smallest detail. Supports were divided and subdivided into main piers, major shafts, minor shafts, and still smaller shafts. The tracery of windows, triforia, and blind arcades were divided into primary, secondary, and tertiary mullions and profiles, and ribs and arches became a series of moldings.

All of the parts which were on the same "logical level" were thought of as members of one class, so that the enormous variety in the shape of the canopies, the decoration of socles and archevaults, and the

¹⁰⁷Ibid., p. 48.

form of piers and capitals tended to be suppressed in favor of standard types admitting only of such variations as would occur in nature among individuals of one species. These decorative and representational features in architecture corresponded to Thomas Aquinas' similitudines.¹⁰⁸

This theoretically unlimited fractionalization of the edifice was limited by what corresponds to the third requirement of Scholastic writing, "distinctness and deductive cogency." The Scholastic mind demanded that the individual elements, while forming an indivisible whole, must retain their identity by remaining clearly separated from each other. The shafts must be distinct from the wall or the core of the pier, the ribs from their neighbors, all vertical members from their arches. Yet there must be an unequivocal correlation between them. It must be obvious which element belongs to which, resulting in what might be called a "postulate of mutual inferability" in conformation. High Gothic style demanded that we be able to infer not only the interior from the exterior or the shape of the side aisles from that of the central nave, but also, say, the organization of the whole system from the cross section of one pier.¹⁰⁹ This is "rationalism" indeed. It is what may be termed "visual logic," or what Maritain calls "working logic". For him, Notre-Dame de Chartres is as much a marvel of logic as Saint Thomas' Summa.¹¹⁰

¹⁰⁸Ibid., p. 49.

¹⁰⁹Ibid., p. 50.

¹¹⁰Maritain, Art, p. 50.

A man imbued with the Scholastic habit would have looked upon the mode of architectural presentation from the point of view of manifestatio (clarification for clarification's sake). He would have assumed that the primary purpose of the many elements that compose a cathedral was to insure stability, just as he understood that the primary purpose of the many elements that constitute a Summa was to insure validity. The Summa was as intricately constructed as a Gothic cathedral, with every logical syllogism placed exactly, just as each stone was placed in a Gothic vault. If any one of the premises were disproved, the whole structure would fall like an arch without its keystone.¹¹¹ But the men of the Middle Ages also expected that the structural composition of the edifice would permit them to re-experience the very processes of cogitation. "To [medieval man], the panoply of shafts, ribs, buttresses, tracery, pinnacles, and crockets was a self-analysis and self-explication of architecture much as the customary apparatus of parts, distinctions, questions, and articles was, to him, a self-analysis and self-explication of reason."¹¹²

¹¹¹William Fleming, Arts and Ideas. (New York: Holt, Rinehart and Winston, 1963), p. 284.

¹¹²Panofsky, Gothic Architecture, p. 59.

CHAPTER V

MUSIC IN THE GOTHIC WORLD

Introduction

Music occupied a place of great importance in the Gothic world, not only because it was a major constituent of the liturgy, but also because of its unique role in the educational system. As musica practica it was a necessity in the various services of the Church, for which the composer and performer were required to provide music. Even more important was the other branch of music, musica speculativa, which served as part of the long process of education of the philosopher and theologian. Here, the function of music was not derived from its possibilities as a sounding art, but from its metaphysical qualities, wherein it could act as a speculum of the universe, a means whereby one might comprehend the harmony of God's creations.¹¹³ The mathematical perception of music was the clue to an all pervading system of numerical relationships, underlying, signifying, and unifying the physical and metaphysical structure of the universe.

The relationship between musica practica and musica speculativa was symbiotic, for one could not have existed without the other. Each developed by drawing upon the other for sustenance. The fact that music was defined as the knowledge of numbers related to sound parallels the interdependence of the cantor and musicus, the term used to distinguish

¹¹³Albert Seay, Music in the Medieval World (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1965), p. 3.

the musician-performer from the musician-philosopher. It was the province of the one to provide the raw material for the other. As a theoretical science, the physical manifestations of music had to relate to the mathematical and metaphysical explanations brought to it by its place as a liberal art. But the technical advances of the cantores had to be recognized and related to the philosophical system as developed by the speculatores. The function of sounding music within theology could not be disregarded by the practitioner, and the philosopher was always aware that adjustments would have to be made in his system to include the technical innovations of the cantor. The medieval ideal was thus achieved by a coordination of the demands made by cantor and musicus. First, music's sounding manifestations should have sufficient technical possibilities to satisfy the performer and composer, and second, the aural results should have the proper theological and philosophical foundations to allow for the appropriate metaphysical deductions.¹¹⁴

This chapter will deal with musica speculativa as part of the educational curriculum and as a philosophical discipline in its own right. The development of musica practica from Gregorian chant to the thirteenth century form known as the motet will be traced in Chapter VI.

Music in Medieval Education

For Western music, the most important survival of the past was the Roman system of education of which music was a part. This curriculum was based upon a logical progression from the foundation of the seven liberal arts to philosophy and theology. The liberal arts

¹¹⁴Ibid., p. 4.

were divided into two levels, known as the trivium and the quadrivium. The trivium consisted of grammar, rhetoric, and dialectic, and the quadrivium comprised arithmetic, geometry, music, and astronomy. These subjects were considered to be essential preparation for the study of philosophy.

The ideas concerning the meaning of music were derived from the same sources as aesthetic theory in general. The essential concepts came from Pythagoras, Plato, and Aristotle, transmitted through intermediaries. The major source was Plato, whose ideas were conveyed in the commentary made on the Timaeus by Chalcidius in the fourth century, and by the Neoplatonists, whose most important early representatives were Plotinus (205-270) and St. Augustine (354-430).

The sources for the text books on music were the writings of Martianus Cappella (early fifth century), Cassiodorus (d. 580), Isidore of Seville (d. 636), and Boethius (d. 524).¹¹⁵ The compilations of Capella, Cassiodorus, and Isidore were brief, but must have been very influential since traces of their works have been found in nearly all of the subsequent writings in the Middle Ages. The outstanding figure, however, was Boethius, whose works De insitiutione musica and The Consolation of Philosophy formed the main source for the role of music in medieval philosophy.

The Philosophy of Boethius

The writings of Boethius on music were essentially an attempt to include Pythagorean elements within a synthesis of Neoplatonic and

¹¹⁵Paul Abelson, The Seven Liberal Arts, A Study in Medieval Culture (New York: Russell & Russell, Inc., 1965), p. 132.

Aristotelian ideas. In many ways he followed the same Neoplatonic concepts as St. Augustine, but he was also heavily influenced by his own commentaries and translations of Aristotle. In De Musica his philosophical approach to music was generally Neoplatonic with admixtures of the Pythagorean, while the influence of Aristotle was shown by the position he gave to music in the educational system.¹¹⁶

The Pythagorean concept that music was number made audible was basic to the philosophy of Boethius. Music was a demonstration in sound of the pure world of number, and derived its beauty from that world. It was in this concept that music achieved its importance in medieval philosophy, for, as a microcosm in the macrocosm it could duplicate on a small scale the power of numbers inherent in the otherwise almost incomprehensible expanse of the world.

In carrying out the implication of this position, Boethius divided music into three levels, musica instrumentalis, musica humana, and musica mundana.¹¹⁷ The lowest level was musica instrumentalis, representing that music which sounds. Its primary purpose was the actual demonstration of the fundamental ratios. Boethius labeled those ratios which were the simplest--octave, fifth, and fourth--as consonances. All others were dissonances.

On the second level was musica humana, in which humana was interpreted both physically and spiritually.

What human music is, anyone may understand by examining his own nature. For what is that which unites the incorporeal activity of

¹¹⁶Seay, Music, p. 20.

¹¹⁷Boethius, De institutione musica, in Source Readings in Music History, ed. by Oliver Strunk (New York: W. W. Norton & Co., 1950), p. 84.

the reason with the body, unless it be a certain mutual adaptation and as it were a tempering of low and high sounds into a single consonance? What else joins together the parts of the soul itself, which in the opinion of Aristotle is a joining together of the rational and the irrational? What causes the blending of the body's elements or holds its parts together in established adaptation?¹¹⁸

Boethius went on to say that there is a harmonious relation between the body and the soul which is a form of music, for it is founded upon the same numerical laws.

The highest level is that of musica mundana, "the music of the spheres."

...the music of the universe is especially to be studied in the combining of the elements and the variety of the seasons which are observed in the heavens. How indeed could the swift mechanism of the sky move silently in its course? And although this sound does not reach our ears (as must for many reasons be the case), the extremely rapid motion of such great bodies could not be altogether without sound, especially since the courses of the stars are joined together by such mutual adaptation that nothing more equally compacted or united could be imagined. For some are borne higher and others lower, and all are revolved with a just impulse, and from their different inequalities an established order of their courses may be deduced. For this reason an established order of modulation cannot be lacking in this celestial revolution.¹¹⁹

Here, harmony is the foundation of all the world around us, not only that on earth, but that of the stars and planets, as well as heaven itself.

Boethius also divided musicians into specific levels.

Thus there are three classes concerned with the musical art. One class has to do with instruments, another invents songs, a third judges the work of instruments and the song. But that class which is dedicated to instruments and there consumes its entire efforts, as for example the players of the cithara and those who show their skill on the organ and other musical instruments, are separated from the intellect of musical science, since they are servants, as has been said, nor do they bear anything of reason, being wholly

¹¹⁸Ibid., p. 85.

¹¹⁹Ibid., p. 84.

destitute of speculation. The second class having to do with music is that of the poets, which is borne to song not so much by speculation and reason as by a certain natural instinct. Thus this class also is to be separated from music. The third is that which assumes the skill of judging, so that it weighs rhythms and melodies and the whole of song. And seeing that the whole is founded in reason and speculation, this class is rightly reckoned as musical, and that man as a musician who possesses the faculty of judging, according to speculation or reason, appropriate and suitable to music, of modes and rhythms and of the classes of melodies and their mixtures and of all those things about which there is to be discussion later on and of the songs of the poets.¹²⁰

This distinction explains the relative places of practitioner and theorist which became fundamental concepts in the medieval musical world. The cantor and the instrumentalist were subject to the speculative insight derived by the musicus.

Thus, the division of music into the practical (musica practica) and the theoretical or speculative, (musica speculativa), was clearly indicated by Boethius, and is reflected in the works of later writers.

Medieval Musical Treatises

Speculative treatises, which may be defined as rationalistic studies of music as a mathematico-philosophical science, may be classified according to the purpose of the author. The treatises prepared for the student of philosophy were primarily hortatory, encouraging him by demonstrating the necessity of musical study through its classifications and relations to other arts. Briefer introductions to music as one of the seven liberal arts were often incorporated into large philosophical works, such as those of Roger Bacon and St. Thomas Aquinas. These sections gave the scope, divisions, aims, and methods of

¹²⁰Ibid., p. 86.

approaching the study of music as a part of philosophy, and of general knowledge. In addition, there were introductions to the subject designed specifically for the student of music. This type of treatise was organized according to certain definite topics. Musical literature of this kind invariably began with the definition, etymology, and invention of music, then described its uses and effects, enumerated its divisions and subdivisions, and discussed its mathematical ratios. One example in this category is the tenth-century De harmonica institutione by Regino of Prüm.¹²¹

Treatises dealing with musica practica were concerned with sounding music, that is, vocal or instrumental. These treatises varied greatly in terms of complexity. At the simplest level there were works for the instruction of the singer, designed to help him solve the practical problems which might arise through his function within the liturgy. The earliest of the practical treatises gave little more than simple directions for the performance of Gregorian chant, with aids to the correct ordering of the modes and the chants within each one. As music became more complex, these treatises expanded to include the teaching of notation, polyphony, rhythm, and related subjects. In these practical treatises little attention was paid to philosophical meaning, for speculative excursions did not have much to do with the main goal of the singer, which was the correct performance of music within the liturgy. This type is exemplified by the treatises of Guido of Arezzo (c. 995-1050), who remarked at one point, "I have simplified my

¹²¹Nan Cooke Carpenter, Music in the Medieval and Renaissance Universities (Norman: University of Oklahoma Press, 1958), p. 27.

treatment for the sake of the young, in this not following Boethius, whose treatise is useful to philosophers, but not to singers."¹²²

Sometimes, however, philosophic points did occur in practical treatises in order to support musical procedures, thus giving a rationalistic basis to the discussion of musica practica.

Medieval treatises on music occasionally appeared in certain other forms which were common in scholastic philosophical or theological writings. One of these was the scholia, or commentary, which gave explanations of the material in an original work, sometimes by means of marginal notes, and sometimes in the form of a dialogue or conversation. The Scholia enchiriadis de arte musica, which is a commentary upon the Musica enchiriadis, is an early example of this type. Another form was the diffinitorium, which was a lexicon defining musical terms. More important than these was the comprehensive musical treatise which was modeled upon the theological speculum. Encyclopedic works of this type comprised, in separate books, treatises dealing with the mathematical basis of music as well as treatises on all topics related to the practice of music in the field of ars.¹²³ The most comprehensive work of this style, and perhaps the greatest of the medieval treatises on music, is the Speculum musicae of Jacques de Liège, written in the early fourteenth century.

¹²²Guido of Arezzo, Epistola de ignot cantu, in Strunk, Source Readings, p. 125.

¹²³Carpenter, Music in Universities, p. 30.

The Speculum musicae of Jacques de Liège

This vast work brought the philosophical and theological speculum into the field of music, and combined into one art both musica speculativa and musica practica, thus becoming a true mirror of all musical learning of the time. It was divided in the following manner:

- Book I: Music: its definitions, its inventors, its divisions. A study of the various numbers and of the arithmetical, geometrical and harmonic proportions.
- Book II and III: The intervals, the consonances and their mathematical proportions.
- Book IV: The consonances and dissonances.
- Book V: The discovery of consonances. The numbers of chords and their names. Celestial music. The melodic genera. The division of the monochord and the various tetrachords according to the Greco-Latin authors.
- Book VI: The division of the monochord according to Guido d'Arezzo. The ancient and modern modes. The tones of melody.
- Book VII: Discant and measured music in former and modern times.¹²⁴

As the titles of the books indicate, the Speculum musicae was a compilation of Boethian, Aristotelian, and Christian-Platonic thinking, and was thus a panorama of medieval music theory and philosophy of number. It was written with reference to the Quadrivium, and its metaphysical approach to number theory was reflected in arithmetic, geometry, music, and astronomy. It was here that all reality was mirrored.

The Speculum musicae became the philosophical rationale of the ars antiqua, a concrete reflection of medieval philosophy contained in an encyclopedic treatment of the nature and proportional background of

¹²⁴Jacques de Liège, Speculum Musicae, ed. Roger Bragard (Rome: American Institute of Musicology, 1955), Vol. 1, p. v.

consonance,¹²⁵ for it was proportional number philosophy that made musical consonance possible at all. In this way Jacques of Liege united in a vast synthesis the musical, philosophical, and arithmetical elements of medieval theory and culture.

These elements were also utilized by the composers of the Middle Ages to create monuments in sound, known as motets. The evolution of this form illustrates not only the symbiotic relationship between musica practica and musica speculativa, but also the parallel relationship between music and the Gothic cathedral.

¹²⁵F. Joseph Smith, "A Medieval Philosophy of Number: Jacques de Liege and the Speculum Musicae" Arts liberaux et philosophie au moyen age: IV^e Congrès International de Philosophie Médievale, Montreal, 1967, p. 1029.

CHAPTER VI

THE EVOLUTION OF THE MOTET

Early Polyphonic Practice

The term polyphony refers to the simultaneous sounding of more than one melody. It began as an improvised accompaniment to the Gregorian chant, and may be regarded as a kind of trope in which new music appeared together with the chant. The placing of an additional melody against a pre-existing one is in the same tradition as literary troping, in which a text is added to an existing musical line. It is, therefore, another form of that reference to authority so much a part of the medieval mind. The given melody, taken from the corpus of Gregorian chant, is the authority to which commentary, now in musical terms, has been added.¹²⁶

The chant melody could not be altered, for it was determined to be immutable by its liturgical nature. The added musical line was also subject to certain restrictions, for the choice of notes was governed by the classification of intervals as consonant and dissonant. In this way the completed work remained within the philosophical and speculative framework of which music was a part.¹²⁷ Improvisation alone could not achieve this ideal, for true polyphony had to be composed in accordance with philosophical and theological requirements.

¹²⁶Albert Seay, Music in the Medieval World (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1965), p. 78.

¹²⁷Seay, p. 79.

Earliest Written Sources

Although there are some early medieval writings which may refer to the simultaneous singing of different tones,¹²⁸ the earliest precise written evidence concerning polyphonic practice is in a work known as the Musica Enchiriadis (c. 850-900).¹²⁹ In this treatise, and in a contemporary commentary on it, the Scholia Enchiriadis, directions are given concerning the ways to sing in parallel with Gregorian chant, which was entirely monophonic. The added voice, known as the vox organalis, sang below the vox principalis at the interval of an octave (ratio 2:1), a fifth (3:2), or a fourth (4:3), as shown in Figure 11.

In its first stage, the added voice simply duplicated the original chant at a fixed interval, but during the eleventh century important progress was made toward melodic independence and equal importance of the two voices. Contrary and oblique motion began to be used extensively, still maintaining the consonant intervals of the octave (2:1), fifth (3:2), and fourth (4:3).

It also became customary for the vox principalis to sing below the vox organalis, and the Gregorian melody thus began to function as the structural foundation for polyphonic development. This singing in parallels, called organum, had great significance, because the process of adding a second melody to the given song restricted the free melodic flow of the chant. The single tones, instead of being merely an

¹²⁸St. Augustine, Boethius, Cassiodorus, Martianus Capella, and Isidore of Seville have written passages which may refer to part-music, but such interpretations have been disputed. Cf. Edward A. Synan, "An Augustinian Testimony to Polyphonic Music?", Musica Disciplina 18, (1964).

¹²⁹Donald Jay Grout, A History of Western Music (New York: W. W. Norton & Co., 1973), p. 77.

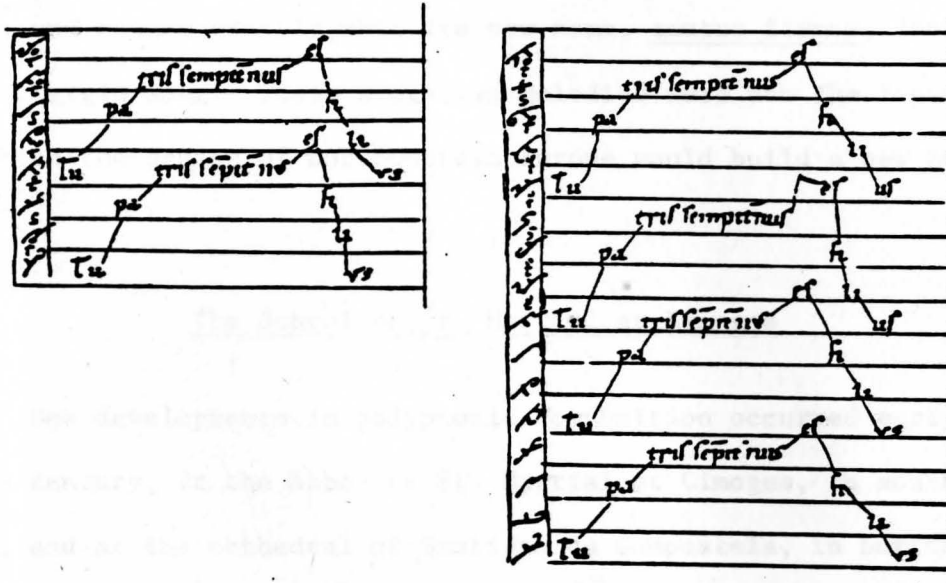


Fig. 11--Notation from Musica Enchiriadis (Ninth century)

^kWilli Apel, The Notation of Polyphonic Music: 900-1600
 (Cambridge: The Medieval Academy of America, 1942), p. 205.

infinitesimal part of the melos, now acquired a certain status. Detached and isolated from the succession of tones making up the melody, the individual tones received a vertical force and became part of a sound-complex created by the simultaneous sounding of two tones. The sound-complex became predominant and relegated the melodic aspect of the music to the background. The chant was deprived of its purely melodic nature, and became exactly what its new name, cantus firmus, implied: a fixed or rigid song. These Gregorian melodies were now the foundation upon which the genius of northwestern Europe would build a new musical world.¹³⁰

The School of St. Martial at Limoges

New developments in polyphonic composition occurred early in the twelfth century, at the Abbey of St. Martial at Limoges, in southern France, and at the cathedral of Santiago de Compostela, in northern Spain. Manuscripts preserved in these locations exhibit, in addition to nota contra notam technique, a new type of organum. In this style, (called variously "florid", "melismatic", or "St. Martial" organum), each note of the original plainchant melody, which lies in the lower voice, is prolonged so as to allow the upper voice to sing phrases of varying length against it. The lower voice, because it sustained, or held, the principal melody, came to be called the tenor (from the Latin tenere, to hold), indicating the voice "holding" the others. These elongated notes of the tenor may be compared to pillars supporting the

¹³⁰Paul Henry Lang, Music in Western Civilization (New York: W. W. Norton & Co., 1941), p. 130.

melodic arc of the vox organalis, now called the "duplum", or "discant."¹³¹

The phrases in melismatic organum usually began, and always ended, with one of the consonant intervals (unison, octave, fifth, and occasionally, fourth).¹³² These intervals are the most prominent throughout each phrase, with thirds, sixths, seconds, and sevenths used as supplementary tones. The following example, taken from the Codex Calixtinus of the cathedral of Compostela, illustrates this style. (See Figure 12.)

The Notre Dame School

Leoninus

Both melismatic organum and nota contra notam style were prominent in the work of Leoninus (second half of the twelfth century), the man who laid the foundation for the main tradition of artistic polyphony. In fact, Hans Tischler asserts that Leoninus' significance lay in his selection of these two styles and his careful distinction between them.¹³³

Leoninus was attached to the chapter of Notre-Dame in Paris, although we are not able to ascertain his exact title or position. However, by 1182, when the choir of the new cathedral had just been

¹³¹Nino Pirrotta, "Dante Musicus: Gothicism, Scholasticism, and Music," Speculum 43 (April, 1968), 248.

¹³²Grout, p. 81.

¹³³Hans Tischler, "New Historical Aspects of the Parisian Organa," Speculum 25 (1950), 21.

in magister Goffredus episcopus surriogatus. Alleluia.

O ca - rit - i - tate fili - a co - dicitur

Ze - be - de - i et io - hannis nem - i - fra - trum

in - ter - ce - ptum est no - num bo - na

ner - gis. Cuncti po - tent - i - gen - tium

de - us om - ni - cre - a - tor. e - ley - son

Codex Calixtinus. Cathedral of Santiago de Compostela (12th century)
Pages 189', 190

Fig. 12.

¹Apel, Notation, p. 213.

vaulted and closed by its chancel, and the main altar consecrated, Magister Leoninus must have already presented his bishop with the original body of the Magnus Liber Organi de Graduali et Antiphonario, a collection of two-voice polyphonic settings, or organa, for the Graduals, Alleluias, and Vesper responsories of the major feasts in the Parisian liturgical calendar.¹³⁴ The historical function of the Magnus Liber was to replace the monophonic Gregorian liturgy with a polyphonic repertoire. The medieval writer¹³⁵ known as Anonymous IV referred to the Magnus Liber in the following way:

It should be noted that Master Leoninus, about whom it has been said that he was the greatest composer of polyphonic music (optimus organista), created a great book of polyphonic settings of the (solo parts of the) Graduale and the antiphonale, with many different settings for Divine service.¹³⁶

Willi Apel asserts that Leoninus created the standard for the Parisian organa, which was based on the distinction between the syllabic and the melismatic sections of the Gregorian melodies which he used in the tenor.¹³⁷ The passages in syllabic, or group style (having one or a few notes to each syllable), were transformed into tenor sections consisting of single prolonged notes, each of which became a "pedal

¹³⁴Pirrota, "Dante Musicus," 248.

¹³⁵This information comes from a treatise commonly known as Anonymous IV from its numbering in the edition of Edmond de Coussemaker, and appears to have been written by an English student at the University of Paris. His statements have been confirmed by other contemporary sources.

¹³⁶Luther Dittmer, ed., Anonymous IV (Brooklyn: Institute of Medieval Music, 1959), p. 36.

¹³⁷Willi Apel, "St. Martial to Notre Dame," Journal of the American Musicological Society 2 (1949), 145.

point" for an extended complex of notes, often 50 to 100, in the upper part.

The sections of the Gregorian melody which were themselves melismatic (often with ten, twenty, or more notes to a syllable) were transformed into tenor passages of a more continuous design and motion, in which the duplum had only two to four times as many notes as the tenor.

The following examples illustrate both methods used by Leoninus. The Gregorian chant melody shown in Figure 13 consists of a passage in 'group style' (one to four notes to a syllable) for the word 'Benedicamus', followed by a melismatic passage on 'Domino.'

The organum based on this melody, shown in Figure 14, consists of a first section with widely spaced tenor notes (organal style) for 'Benedicamus', and a second section showing continuous motion in the tenor (discant style), as a setting for 'Domino.'

In the work of Leoninus the melismatic style of the St. Martial organum developed into vast melodic sweeps moving over greatly extended sustained tones in the tenor. These greatly increased melismatic passages were controlled by directing the melodic movement from one consonance to another over the same sustained note in the tenor, so that the flexible melodic line is subdivided into smaller phrases, beginning and ending with consonant notes.

The contrasting sections in discant style, known as clausulae, show an even more striking development. They are the earliest known examples of polyphonic composition in strict rhythm.¹³⁸ It was

¹³⁸William G. Waite, The Rhythm of Twelfth-Century Polyphony (New Haven: Yale University Press, 1954), p. 12.

2.

B

Enedi-camus Dó- mi-no.

Fig. 13--Gregorian Chant Melody.

^mLiber Usualis (Belgium: Desclee & Cie, 1958), p. 124.

mi no. ne de ca mul do

B

mmo E ne de ca

Fig. 14--Organum from Florence manuscript.


ⁿApel, Notation, p. 247.


Leoninus' unique contribution to replace the even unmeasured flow of earlier polyphony with recurrent patterns of long and short notes. These different patterns are known as rhythmic modes, and they are indicated in the music by a system called modal notation.

The Rhythmic Modes



William Waite offers the theory that Leoninus, in his search for a rhythmic basis for his music, turned to the treatise on rhythm by St. Augustine, De Musica. He derived from this work the fundamental doctrines of rhythm that came to be known as the rhythmic modes, i.e., rhythmic patterns derived from metrical feet.¹³⁹ Waite points out that Augustine himself intended this work to be a treatise on rhythm as a part of music, and not only a treatise on metrics, and demonstrates that the theory of rhythm contained in the De Musica coincides almost exactly with the modal system. This congruence is further evidence of the pervasive influence of Augustinian aesthetics in medieval culture.


Leoninus himself used only one mode, while his successor as a composer at Notre Dame, Perotinus (c. 1183- c. 1238), expanded the system into its final form of six individual modes.

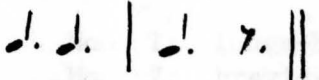
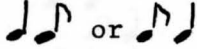

The first mode corresponds to the classical trochaic verse, where the foot consists of a long syllable followed by a short: - ∪ . It appears as  in musical symbols.

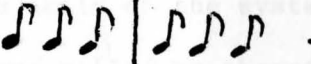
The second mode is the iambic, which is the reverse of the first: ∪ - . .

¹³⁹Ibid., p. 12.

The third mode, the dactylic (— ∪ ∪), would logically be written . However, as Dom Anselm Hughes points out, the theorists of the time describe the rhythm as . The explanation given by them is that triple time alone is used out of veneration for the mystery of the Holy Trinity.¹⁴⁰

The fourth mode, the anapestic, is the reverse of its predecessor: ∪ ∪ — (). It was used very infrequently.

The fifth mode consists entirely of longs, usually in groups of three, with a rest used to complete the double unit of two measures: . The quarter-note is dotted because it must be divisible by three, so that  or  may be set against it in the upper parts. The fifth mode is generally used in the tenor only.

The sixth mode is ordinarily found in an upper part. It consists of groups of three shorts: .

Theoretical descriptions of this system did not appear until the thirteenth century, when most theorists pointed to the fact that the rhythmic modes corresponded to the feet of quantitative meters in classical poetry.¹⁴¹ For example, Johannes de Garlandia (c1195-1272) stated at the beginning of his treatise Introductio Musice, "The subject in music is the joining of tones or rests in a necessary, properly observed manner. The predicate is the lawful art of adjusting this same

¹⁴⁰Anselm Hughes, "Music in Fixed Rhythm," in New Oxford History of Music, Vol. II, Early Medieval Music up to 1300 (London: Oxford University Press, 1955), p. 319.

¹⁴¹Richard Hoppin, Medieval Music (New York: W. W. Norton & Co., 1978), p. 221.

music in suitable proportions by observing diligently all its modes, and for this art the ars metrica supplies the philosophical part."¹⁴²

The metrical units which comprised the rhythmic modes were grouped in ordines, each of which comprised a certain number of perfectiones, representing the optimal unit of measurement, the mensura, and each of them always consisting of three tempora. The actual time-values, i.e. longa (♩) and brevis (♪) were arranged within the framework of the single, or sometimes double, perfectio according to the rhythmic modes described above.¹⁴³

Mode 1: longa-brevis		= perfectio (longa perfecta)
Mode 2: brevis-longa		
Mode 3: longa-2 breves		
Mode 4: 2 breves-longa		
Mode 5: 2 longae		
Mode 6: 3 breves		

Thus, it can be seen that the basis of the system of rhythmic modes was the threefold unit of measure called by theorists a perfectio-- a "perfection." Franco of Cologne (fl. 1250-1280) who was the first to establish triple time as the basic meter,¹⁴⁴ described the perfectio in the following way:

The perfect long is called first and principal, for in it all the others are included, to it also all the others are reducible. It is called perfect because it is measured by three "tempora," the ternary number being the most perfect number because it takes its name from the Holy Trinity, which is true and pure perfection.¹⁴⁵

¹⁴²Johannes de Garlandia, Introductio Musice, in Scriptorum de Musica Medii Aevi, Nova Series, ed. by E. de Coussemaker, Tomus I. (Hildesheim: Georg Olms Verlagsbuchhandlung, 1963), p. 157.

¹⁴³Finn Mathiassen, The Style of the Early Motet (Copenhagen: Dan Fog Musikforlag, 1966), p. 18.

¹⁴⁴Grout, p. 110.

¹⁴⁵Franco of Cologne, Ars cantus mensurabilis, in Strunk, Source Readings, p. 141.

From this quote it can be seen that Franco, who codified the work of earlier theorists of the thirteenth century, was deeply influenced by medieval number symbolism and ecclesiastical doctrine.

The perfectio is the equivalent of ♩ in modern notation, and the other values, ♪ and ♫, could be contained in the perfectio in various combinations, as everything can be contained in the Holy Trinity, which was seen as "true and perfect perfection." The result of the system was that all medieval polyphony until the fourteenth century, insofar as it was in measured rhythm at all, was dominated by the ternary division of the "beat."¹⁴⁶

The rhythmic modes were indicated by a system known as modal notation. This method, probably created by Leoninus, utilized a few simple ligatures (a ligature is a series of notes written as one symbol). By grouping them into fixed patterns, the composer was able to establish the desired rhythm. Figure 15 illustrates the more common ligatures of modal notation.

The ligatures are combinations of longas and breves. Their time value depends on the context, on their position in the pattern. Patterns of ligatures were used to indicate the rhythmic modes as described in Figure 16.

The development and use of the rhythmic modes is considered by Hans Tischler to be an expression of the ultimate rationalization in music. He states that the passion for control and order, so evident in all of the manifestations of the medieval spirit, seized upon mathematical proportion as an instrument. These forces are expressed

¹⁴⁶Richard Crocker, A History of Musical Style (New York: McGraw-Hill, 1966), p. 78.

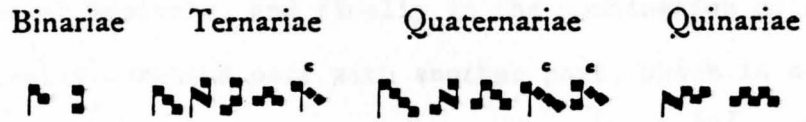


Fig. 15--Common ligatures of modal notation.

^oApel, Notation, p. 224.

Combination	Example	Transcription
1. 3 2 2 2 2		
2. 2 2 2 2 3		
3. 1 3 3 3		
4. 3 3 3 1		
5. 3 3 3		
6. 4 3 3		

Fig. 16--Ligatures with transcriptions.

^pApel, Notation, p. 225.

in the rhythm within the phrase, in the arrangement of phrases according to the number of measures, and finally in the combination of such a rationalistically arranged part with another part, which is also arranged in accordance with a rationalistic principle.¹⁴⁷

This view echoes the description of discant and modal rhythm by medieval theorists, as evidenced in the writing of Franco of Cologne.

In Ars cantus mensurabilis he stated:

Discant is a consonant combination of different melodies proportionately accommodated to one another by long, short, or still shorter sounds and expressed in writing as mutually proportioned by suitable figures.¹⁴⁸

The important term is proportion, for, as Manfred Bukofzer points out, retaining a certain rhythmic scheme in the various parts of a composition actually meant to keep the same numerical proportion.

"The musical composition was outlined according to the same rules as was medieval architecture."¹⁴⁹

Perotinus

Leoninus' rhythmic innovations were developed and expanded by his successor, Perotinus. His advances are documented in his revision of the Magnus Liber, which contains many new sections in discant style.

Anonymous IV described his work in the following way:

(The Magnus Liber of Leoninus) was in use until the time of Perotinus the Great, who shortened this book, and who composed many

¹⁴⁷Hans Tischler, "The Motet in Thirteenth Century France" (unpublished Ph.D. dissertation, Yale University, 1942), p. 130.

¹⁴⁸Franco of Cologne, Ars, in Strunk, Source Readings, p. 141.

¹⁴⁹Manfred Bukofzer, "Speculative Thinking in Medieval Music," Speculum 17 (April, 1942), 180.

very fine clausulae or musical sections, whereas he became the greatest composer of discantile compositions; and he was a greater composer than Leoninus, although there is no question about the subtilities (*id est* rhythmic complexities) in Leoninus' polyphonic compositions.¹⁵⁰

The clausulae to which Anonymous refers are written separately, or re-written, at the end of the volumes of three important manuscripts (Wolfenbittel 677; Florence, Bibl. Laur. plut. xxix, 1; Paris, Bibl. Nat. lat. 15139). These 'substitute clausulae' are important not only because they were the "birthplace of the motet",¹⁵¹ but also because their creation provided the opportunity for full exploration of modal rhythm. Many of these clausulae survive in the manuscripts, with several being interchangeable for a single original, all of these, of course, being based on the same liturgical tenor. The Florence manuscript alone has 308 substitute clausulae written in discant style.¹⁵² These works demonstrate Perotinus' most important development, which was the extension of the use of rhythmic modes within the tenor.

In the earliest discant clausulae, presumably by Leoninus, the tenor in the discant sections proceeded in a series of even longs. Perotinus organized the tenor melody systematically, utilizing the modes, and stabilizing the structure by repeating the patterns throughout the clausula. The upper voice also adhered much more rigidly to a modal pattern, so that both melodic lines moved in sharply defined

¹⁵⁰Dittmer, p. 36.

¹⁵¹Hughes, p. 348.

¹⁵²Gustave Reese, Music in the Middle Ages (W. W. Norton & Co., 1940), p. 300.

independent rhythms. Both voices now exhibit rhythmic interest, and there is what Albert Seay refers to as "rhythmic counterpoint."¹⁵³

This rationalization, stabilization, and systematization of rhythm resulted in another important advance by Perotinus--the composition of three-part and four-part organa, known as organa tripla and quadrupla. In these masterpieces Perotinus solved the problems of combining three or four melodically and rhythmically independent voices.

The three extant quadrupla are towering achievements. They ornament the most important festivals: Viderunt omnes is part of the Christmas gradual, Sederunt is from the St. Stephen's gradual, and the clausula Mors belongs to the Easter alleluja.¹⁵⁴ The development of the chant setting of Mors into the quadruplum provides a fascinating example of twelfth and early thirteenth century compositional techniques.

The Clausula Mors

The Gregorian chant melisma in Mors as it appears in the Liber Usualis is reproduced in Figure 17.

Figure 18 illustrates the two part organum on Mors as it appears in the Florence manuscript.

Figure 19 reproduces the four-part organum on Mors as it appears in the Wolfenbittel manuscript. A transcription in modern notation follows. [Figure 20]

¹⁵³Seay, p. 104.

¹⁵⁴The clausula Mors was probably not composed by Perotinus, but Hans Tischler offers convincing proof in "New Aspects of the Parisian Organa" that it was written soon after the Viderunt and Sederunt, which can be dated (1198/99), and which are definitely the work of Perotinus.



Fig. 17--Gregorian Chant melody on Mors.

⁹Liber Usualis, p. 827.



Fig. 18--Two-part organum on Mors.

^rFlorence, Biblioteca Mediceo-Laurenziana, Pluteo 29, I.
Facsimile reproduction of the manuscript. Edited by Luther Dittmer.
(New York: Institute of Medieval Music, Ltd., n.d.), f. 112v.

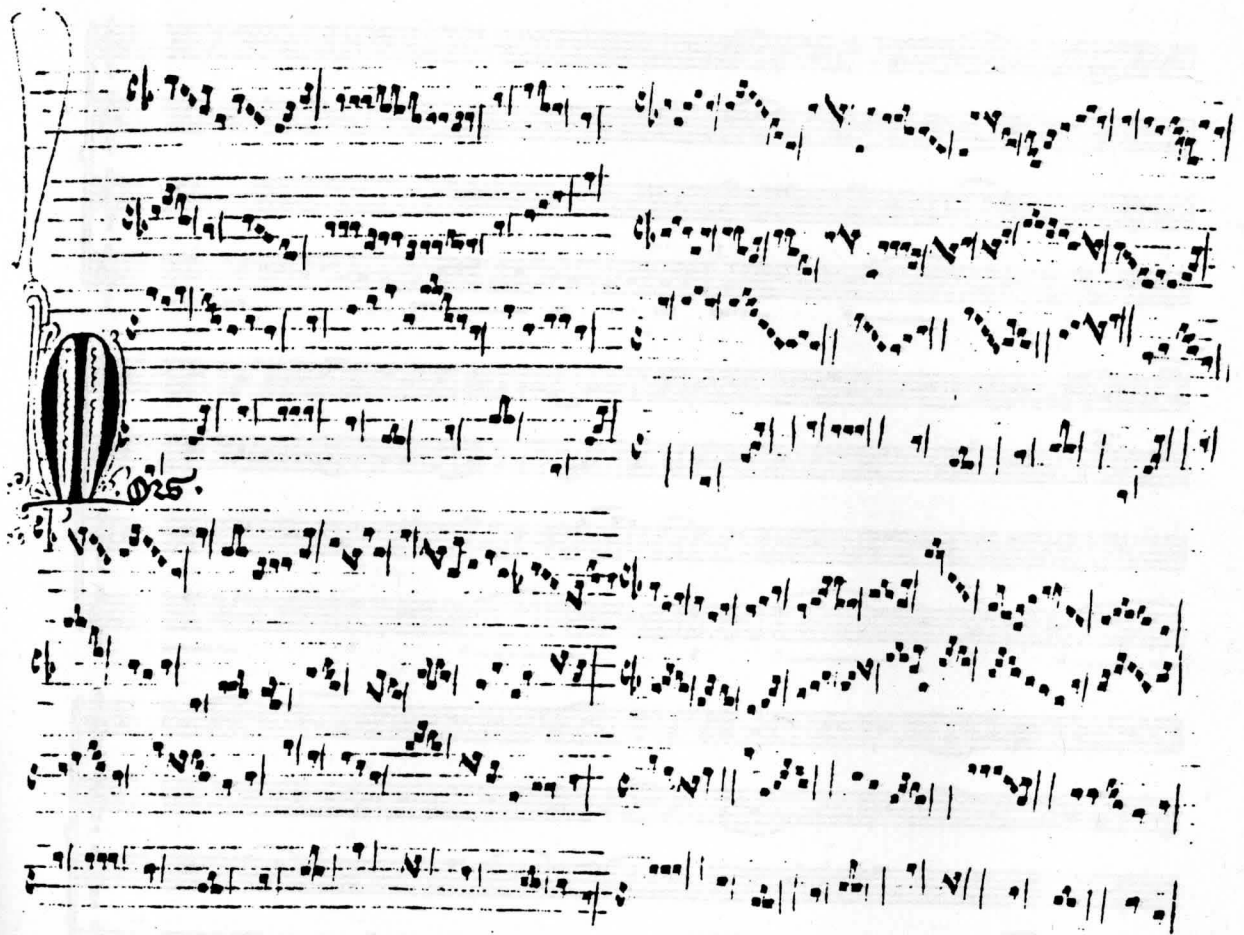


Fig. 19--Four-part organum on Mors.

^SWolfenbittel 1099 Helmstadiensis-(1206). Facsimile reproduction of the manuscript. (New York: Institute of Medieval Music, 1960), f. 5r, v.

Al - le - lu - ia

V. Chri - stus re - sur - gens ex mor -

tu - is iam non mo - ri - tur mors

I.

II.

The image shows a musical score for a four-part organum. It consists of two vocal parts at the top and two piano parts below. The vocal parts are in mensural notation with Latin lyrics. The piano parts are in mensural notation. The score is divided into two systems, each with two systems of staves. The first system includes the vocal parts and the first system of piano parts. The second system includes the second system of piano parts. The lyrics are: 'Al - le - lu - ia', 'V. Chri - stus re - sur - gens ex mor -', 'tu - is iam non mo - ri - tur mors', 'I.', and 'II.'.

Fig. 20--Modern transcription of four-part organum on Mors.

The image shows a page of musical notation. The top five systems are piano accompaniment, each consisting of three staves (treble, alto, and bass clefs). The bottom three systems are vocal lines, each consisting of a single staff with lyrics underneath. The lyrics are in Latin and include the words 'mors', 'il - li', 'ul - tra', 'non do -', 'mi - na -', 'bi - tur', 'u', and 'Al - le - lu - ia'. There are asterisks above the first and third vocal lines.

mors il - li ul - tra non do - mi - na - bi - tur

*
u

*
Al - le - lu - ia u

^tHeinrich Husmann, Medieval Polyphony (Cologne: Arno Volk Verlag, 1962), p. 24, 25.

The four-voice organum Mors is in discant style. The forty-two notes from the chant melisma on the syllable Mors are structured in a fifth-mode tenor pattern. Above the tenor the three voices move in the first mode, with the long and short portions of the trochaic foot often combined.

The addition of the third and fourth voices does not alter the overall form of the organum, but the musical style changes in several ways. The upper voices lie at about the same pitch level and frequently cross, carrying melodies which are narrow in range and move around perfect consonances above the tenor. This style causes the interest to shift from melodic outline to rhythmic and chordal structure. The combination of regular and persistent rhythms with consonant chords on each strong beat creates a sound mass which is overwhelmingly vertical, as opposed to the linear effect of the organum duplum.¹⁵⁵

However, the powerful effect of organa quadrupla does not spring from the reiteration of rhythmic and chordal patterns alone. Melodic repetition and organization also becomes tremendously important. In organum duplum, the contrasting rhythmic character of the two voices made the establishment of melodic relationships difficult. But the composer working with three voices above the tenor found that it was possible, and indeed necessary, to develop procedures for relating the simultaneous melodies and for shaping the melodic material into comprehensible musical structures.

¹⁵⁵Hoppin, p. 235.

One device, also found in organum duplum, was the use of melodic sequences to give direction to the phrases of a melodic line. This technique is evident in measures 29 and 30 of Figure 20.

One of the most common structural devices used in the quadrupla was voice exchange. For example, in measure four of the clausula Mors, the triplum repeats the motive which the quadruplum introduced in measure one, and the duplum reiterated in measure three, in a somewhat altered rhythmic form. This kind of imitation, which results from the transfer of motives from one voice to another, is closely akin to the older method of voice exchange, in which each voice of an organum triplum literally repeated the other. Motivic development such as this was one of the important devices used to unify a polyphonic texture. It provided a keen sense of architectural balance among the voices which is akin to the balance of thrust and support achieved in the Gothic cathedral.¹⁵⁶

Although Mors is quite short, the exploitation of the structural devices which it exhibits allowed composers to produce works of great length. Both the Viderunt and the Sederunt are works of astonishing dimensions. As Richard Hoppin remarks, "It would seem that, as the nave of Notre Dame neared completion, the cathedral's unprecedented size and magnificence stirred Perotinus to fill the vast space with music of equal splendor. For his successful achievement of this goal he well deserves to be remembered as Perotinus the Great."¹⁵⁷

¹⁵⁶Theodore Karp, "Rhythmic Architecture in the Music of the High Middle Ages", Medievalia et Humanistica, new series, I, 1970, p. 79.

¹⁵⁷Hoppin, p. 241.

The Motet

At this point of greatest intellectualization, when gigantic musical structures were made possible by the principles of metric-rhythmic phrase construction, the idea of the trope of the Gregorian chant ushered in the transformation of the discant clausula into the motet. It will be recalled that in the trope a new text, paraphrasing or explaining the liturgy, was added to an existing Gregorian melody. In a continuation of this practice, poets in the late twelfth century began to add words to the upper voices of organum. This activity, literary rather than musical, created a new musical genre, the motet. The name is derived from the French mot, meaning "word."¹⁵⁸

In the earliest motets, the music of the clausula was not changed, and the upper voices were given a Latin text which was a paraphrase or glossing of the meaning of the text given in the Gregorian tenor. The motet on Mors provides an excellent example of this practice. (Figures 21 and 22.) A translation of the text illustrates the correlation of the added words with the tenor.

B. Motet: (Quadruplum) Death appeared quickly upon the first father's sin, when disobedience to the command of God took place. O death, you triumphed from the tree, when seduction was perpetrated by the devil's death-bearing mouth against the first-born. O death, you conquer when dies the Lord of all peoples placed on the cross, [but] are desolate when there is revealed from the cross the heavenly Lord's son! O how great a resurrection! Because it happened when the people was saddened, crucified in the punishment of hell, tightly bound, prostrate, in bonds, [and] terrified at the awful sight of death! For this reason our gathering sings hymns to the holy son of God.

(Triplum) Death, you press us with eager, unwelcome goad, [and] drag us all with a single chain. While I avoid you, death,

¹⁵⁸Hoppin, p. 252.

you are here suddenly, against my wish. Death whom I dread, avoid, whom I flee but do not escape, you creep furtively, wide-awake with unsleeping eye, while the rich man of distinguished rank, flourishes in the world. When this little body has been demolished and broken up, when this little span of life is over and emptied, you shut him up in the clay of a fragile urn, in a tiny corner, in a little tomb. Death, you threaten our throat with drawn sword. I shall live, as I fortify myself in safety with the sign of the cross, the shield of Christ, O death.

(Duplum) Death, born of a poisoned bite, you had adhered to a tainted palate. Death, you come after the first sin was derived from ancestral transgression. The spring being filled with gall, corruption takes place from the proffered wormwood. But when the poison had been dried up by the serene ray, a reformation occurs--when the true sun is born, when the Word made man has suffered under Pilate, has been sold by the treachery of Judas, has been handed over to death of the cross, [and] when the bite of death has been destroyed, and true life has been restored.

(Tenor) Death.

Plainsong: Alleluia. Christ having risen from the dead, dies now no more; (death) shall no longer have dominion over Him.¹⁵⁹

The tenor Mors was also used as the foundation for two voice and three voice motets, which were included in the Montpellier manuscript (Bibl. Universitaire, H 196), the Bamberg (Ed IV 6), and the Madrid (Bibl. Nac. 20486), in addition to the Florence manuscript.

The versions of the Mors motet vary to some extent. For example, the Florence manuscript has a three voice motet which is identical to the four voice motet in the Montpellier manuscript, except that the top voice has been eliminated. (Figure 23) The Bamberg Codex contains two three voice motets built on Mors, one of which is like the Florence example, but the other has different music in the duplum and triplum, accompanied by different texts, and with a different rhythmic organization in the tenor. (Figure 24 and 25)

¹⁵⁹Edward R. Lerner, Study Scores of Musical Styles (New York: McGraw Hill Book Co., 1968), p. 35.

douce amie - trop fait
 amoureux tant de ce
 aprouver qui la sans
 ment pour noient
 dans grier. mes lamoi
 suantiez ceste abee
 deuce au cource du
 trop use ma vien
 tee mal au amors
 en grier courtement
 ou pite et doucor net
 te ne uultra mie
 trouee.
 longuement.
 Mors a peine pa
 Morsq' amulo

Fig. 21--Four-part motet on Mors.

.lvi.
 foi en telegion vis
 a grant a noi dire car
 trop sui conete Je fet
 les doz maus de loz ma
 centuete hōms sor
 de dieu que me fet
 nonete.
 ors morlu.
 ors morlu.

	
tes uicio contrahit	nos: uegas emulo
	
sio iustitiae dei facta sunt	impotuno trahis
	
emerit o mors aliq	uno omnes uinculo
	
no que triumphauit	dum te uiato mors
	
tas cum seductio ad	ades subito tunc mors
	
monti ore mortifero	qm pauco caueo qm
	
primo procreato o mors	fugis no effugio serpis
	
que moriente serpens	clanculo desso

Ave

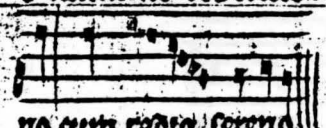
nata venenata mo
 tu palato hferas
 uciato mors paca
 to primo dequato
 exuato uenis aucto
 fonte fellico sic
 corruptio ec
 ablan et

The image shows a page from a musical manuscript. At the top right, the page number '101' is printed. In the upper center, the word 'Ave' is written in a decorative script. Below this, there are two columns of musical notation. The left column consists of ten staves of music, each with a line of Latin text underneath. The right column also consists of ten staves of music, which appear to be a second part of the composition. The text is written in a Gothic-style font. The overall image is somewhat grainy and has a high-contrast, black-and-white appearance.

	
gentium omnium do	lito iuge loculo di
	
mino cruce locuto deso	insignito diues titu
	
laris celestis a pati	lo flores seculo iuge
	
vulo celestis comitu si	finico hoc circulo ia
	
uo o quanta surrec	nto demolito hoc cor
	
to quia populo con	pustulo dissoluto teste
	
tristato in penus mife	fragil luto puculo clau
	
ti cruciatio abtato pro	dis angulo becu titulo



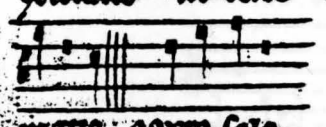
o simulato sed uene



no cum cetero cetero



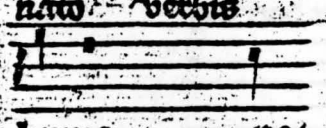
exsecuto sit ueror



natio: o uero sole



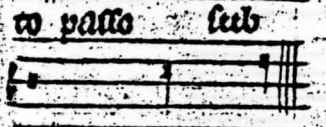
nato: uerbis



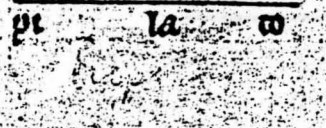
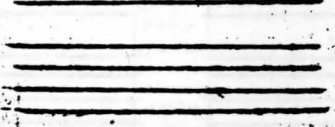
huma na



to passo sub



pi la to



	
stato legato moris	moris gaudio exuto in
	
expalato tunc pelli	stans uigilo uiam
	
mo ob hoc proprio	ut in tunc me signa
	
dei filio psallat tam	culo exuto in tunc in
	
pio nostra concio.	te stant uigilo.
	
	
	

dolo uide uendito
 cruce motu trac
 tato motus mor
 su perditio xpita
 tato o motu

⁴Yvonne Rokseth, *Polyphonies du XIII^e siècle*. An edition of the manuscript Montpellier, Bibliothèque Universitaire, H. 196 (Paris: Editions de l'oiseau lyre, 1935-39), f. 57v-61r.

♩ = ♩

Quadruple [256] *Fol. 57 vr* *Fol. 58 vr*
 Mors a pri - mi pa - tris ui - ci - o, Cum transgres - si -

Triple [254] *Fol. 57 vr* *Fol. 58 vr*
 Mors, que sti - ma - lo Nos ur - ges e - mu -

Double [255] *Fol. 58 vr* *Fol. 59 rp*
 Mors mor - su na - ta ue - ne - na -

Teneur *Fol. 59 rp*
 MORS

o In - su De - i fac - ta fu - it, E - mi - cu - it. O

lo Im - por - tu - no, Tra - his u - no O - mnes uin - cu - lo. *f, ma*

to, Mors, tu pa - la - to He - se - ras ui -

10 mors, a li - gno Que tri - um - pha - ue -

Dum te ui - to, Mors, ad - es - su - bi -

ci - a - to, Mors, pec - ca - to

O.L. 51

Fig. 22--Modern transcription of four-part motet on Mors.

80

18

ras, Cum se - du - cti - o A de - mo - nis - o -
to In - ui - to. Mors, quam pa - ue -
Pri - mo de - ri - ua - to Ex ui - ci - o ue - nis

20

re mor - ti - fe - ro Pri - mo pro - cre - a - to!
o, Ca - ue - o, Quam fu - gi - o, Non ef - fu - gi -
a - ui - to, Fon - te fel - li -

22

O mors, que mo - ri - en - te su - pe - ras Gen - ti - um
o, Ser - pis cian - cu - lo In - so - pi - to
to. Fit cor - ru - pti - o Ex ab - sin - ci - o Trans -

Fol. 59 re
Fol. 59 re
Fol. 60 re
Fol. 60 re

23

o - mi - um de - mi - no, Cru - ce lo - ca - to,
VI - gil o - cu - lo, Dum in - si - gni - to
la - to; Sed ue - ne - no

(1) Ms: s e . .

(2) Ms: p .

35

De - so - la - ris re - lo - ua - to A pa - ti - bu - lo

Di - us ti - tu - lo Flo - ret se - cu - lo. Vi - te fi -

Cum ra - di - o Se - re - no

(1) (1)

40

Ce - le - stis do - mi - ni fi - li - o. O quan -

ni - to Hoc cur - ri - cu - lo, In - a - ni - to,

Ex - sie - ca - to, Fit

(1) (1)

45

ta sar - rec - ti - oi Quan - ta po - pu - lo com - tri - sta -

De - mo - li - to Hoc cor - pu - scu - lo, Dis - so - lu -

re - for - ma - ti - o, Ve - ro so - le na -

f. w

50

to, In pe - nis in - fe - ri - cru - ci - a -

to Tes - te fra - gi - lis lu - to, Par - un - lo

to, Ver - bo hu - ma - na - to,

(1) (2)

(1) *Ms: a. e. -*(2) *Note manquant dans Ms.*

55 *Fol. 80 v^o*

to, Ar - cta - to, Pro - stra - to, (1)
 Clau - dis an - gu - lo Bre - ui tu - mu - lo, Mora, gin - di -
 Pas - se sub Pi - la - to,

60 (1) *Fol. 81 r^o*

Li - ga - to, Mor - tis ex - ter - na - to (1)
 o Ex - u - to In - stas in - gu - lo.
 De - lo In - de ven - di - to, Cru - cis
Fol. 81 r^o

65

Vi - su pes - si - mei Ob hoc pro - pri - o De - i fi - li -
 Vi - uam, ut in - tu - to, Me si - gna - cu - lo Cru - cis ma - ni -
 mer - ti tra - di - to, Mor - tis mor - su per - di -

70 (3) (3)

o Psal - lat tam pi - o No - stra con - ci - o.
 o, Chri - sti scu - to, O mors!
 to, Vi - te sta - tu red - di - to.
 (2) (3) (3) (4) [rit.]

(1) *Ma: s e.* (2) *Note piquée dans Ma.* (3) *Ma: p.* (4) *Note manquant dans Ma.* (5) *Ma: sib.*
 O.L. 51

V Rokseth, Polyphonies, pp. 79-82.

fructu de te uite elicere. fecunde gram funde. cuius habu
 de effluant unde. unde sint anime fide mude. spe ualde.
 da gno me lacti spiritu amore pficere me qui docebit.
 Doce
De sedeat locat
 ad aleat. fructaleat mundi p palcat. r studeat ut tr neata
 te remoueat. ut floreat uite plaurcat. et sic eat ut eat ha
 beat ut gaudeat. ad hercat p der tuncat ne tateat firmat
 tentat ut tenuerit se tenuit.
Mors q stimulo nos urget cumulo. impozano tradit

Fig. 23--Three-part motet on Mors.

uno omni unculo. dūte uno mors ad subitū uiuio.
 mors qm pauco cauco. qm fugio nō effugio. serpis clancu-
 lo insopito uigil oculo. dū insignito diucl titulo flozel se-
 culo. uite finito hoc criculo. manuto demolito hoc corpuscu-
 lo. dissoluto teste fragilib luto. paruulo claudis angulo.
 breuitamula mors gladio exuto instat uigulo. unam
 ut unuto me signaculo crual muno xpi sauto mors.
Mors morsu nata uenenato. mors tu palato helerasui
 riato. mors peccato primo deriuato ex unio ueni sauto. face-
 scillito. sic corruptio ex absintio inslato. S; ueneno cū 12

L
 dio sermo et factus. sic reformatus. uero sole nato. uero
 humanato passo sub pilato. uide dolorem suum. crucis ma-
 tritudo. mortis mortis p[ro]p[ter]itio. uero ita uero d[omi]ni. A. M. O. I.
 I. O. S. T. E. S. U. P. R. A. E. T. I. N. F. E. R. N. U. M. R. E. S. E. R. A. T.
 E. T. H. O. M. I. N. E. M. L. I. B. E. R. A. T. P. R. O. P. T. I. A. C. U. L. P. A. E. S. O. L. U. T. D. E. B. I. T. U. M. D. E. I. F. I. L. I. U. M. Q. U. I.
 P. R. O. P. T. I. A. S. C. O. E. L. E. R. U. M. D. A. T. A. U. E. M. A. S. I. N. A. G. R. A. R. E. D. D. I. T. L. I. B. E. R. U. M. S. I. C. E. T. U. M.
 T. A. P. U. R. G. A. N. S. O. P. U. M. N. O. S. A. D. S. U. P. E. R. U. M. D. U. C. I. T. G. A. U. D. I. A.
 S. A. L. U. E. M. A. T. R. F. O. N. S. O. R. O. R. U. E. L. L. U. S. G. E. D. E. O. N. I. S. P. O. R. T. A. C. E. L. I.

qui a fac tu crouce en plus durt et cpm
 ne lone gent a que la tamenamer a
 cen qui en loiaute la seruir a
Qon peperat deus filio propri
 o hominis propagant colent ericio
 filium proprium dei promissio mi
 sit de solio stellato spiritus dui
 uicus sit obmiracio / xent e
 quibus in te hinc deo magis
 ne ne reventi de seruir si amia re do
 loiam et si memucan epouit metoert
 se desirre si quent li naponit de merti
Don peperat deus nato propri
 o munit hica sumo pmaudi solaci
 o dat flagello pait emditur
 signo captio ihm osculato co
 ropatur spincto et
 probetur exordico in partibu
D 025

Fig. 24--Three-part motet on Mors.

lo nato a de datur liberatio quia sub
 pilato uerum captus et sic passio
 traditur affligitur crucis simplici
 Quis amor que compassio rege
 cruciatio agno uero mactatio
 hoste cūphato sic redemptio gaudio
 pudio simplici nec lo laro rebanatio
 pto p latio reuoratio opia spha
 aqua ambo it crepto liberatio et reparatio
 lo offertur dolo hinc tenio est genu
 flexatur salu dicitur rex iudeo
 Aueto clamans sigio p
 dicitur felles aceto gus
 tatio spiritui tui sanguis la
 to conditur iam tumulo sub se
 quies surgit pto i latio bannio ip
 latio a de datur redemptio
 mox la quia liberatio et reparatio

*Pierre Aubry, ed., *Cent Motets du XIII^e Siecle*, 3 vols.,
 publies d'après le manuscrit Ed. IV. 6 de Bamberg, (Paris, 1908; reprint
 ed., New York: Broude Brothers, 1964), I, f. 41v, 42r.

Non pe - per - cit De - us fi - li - o pro - pri - o
 Non pe - per - cit De - us na - to pro - pri - o,
 Mors.

Ho - mi - nis Pro - pa - gi - nis Do - lens ex - i - ci - o.
 Mit - tens hunc a sum - mo pro mun - di so -

Fi - li - um Pro - pri - um De - i pro - vi - si - o
 (h) - la - ci - o. Dat fla - gel - lo, Pa - cis

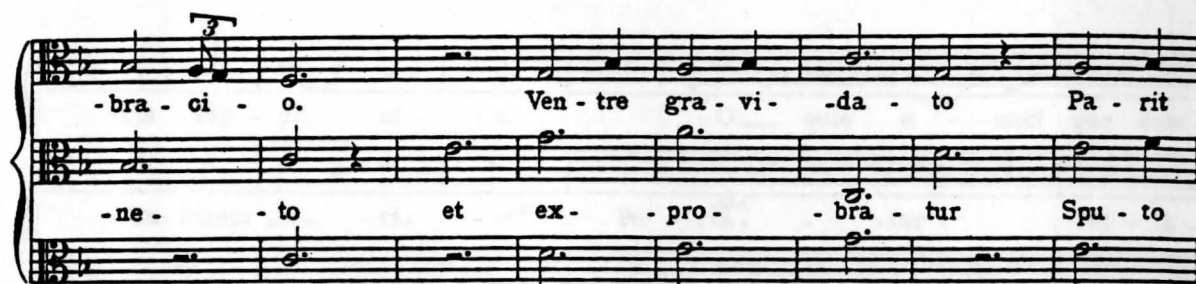
Mi - sit de so - li - o Stel -
 tra - di - tur si - gno, Cap - ti - o

Detailed description: This is a musical score for a three-part motet. It consists of five systems of music. Each system has three staves: a vocal line (Soprano, Alto, and Tenor) and two piano accompaniment staves (Right and Left Hand). The music is written in a 3/4 time signature with a key signature of one flat (B-flat). The lyrics are in Latin and are printed below the vocal lines. The first system includes the word 'Mors.' below the piano accompaniment. The second system has a fermata over the final note of the vocal line. The third system has a triplet of eighth notes in the vocal line. The fourth system has a fermata over the final note of the vocal line. The fifth system has a fermata over the final note of the vocal line.

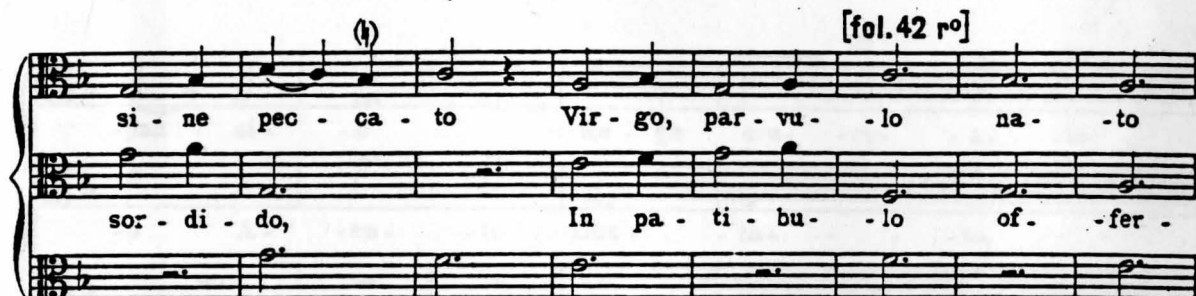
Fig. 25--Modern transcription of three-part motet on Mors.



- la - to Spi - ri - tus Di - vi - ni - tus Fit ob - um -
Jhe - su os - cu - la - to co - ro - na - tur Spi -




- bra - ci - o. Ven - tre gra - vi - da - to Pa - rit
- ne - to et ex - pro - bra - tur Spu - to



[fol. 42^{ro}]
si - ne pec - ca - to Vir - go, par - vu - lo na - to
sor - di - do, In pa - ti - bu - lo of - fer -



A - de da - tur li - be - ra - ci - o, Qui - a
- tur. Do - lo hinc de - ri - si - o Est ge -



sub Pi - la - to Jhe - su cap - ti - o
- nu - fle - xi - o Sa - lus, di - ci - tur, Rex

Et fit pas-si-o. Tra-di-tur, Af-fli-gi-tur Cru-
Ju-de-o, A-ve-to!

-cis sup-pli-ci-o. O-quis a-mor! que com-
Cla-mans: „Si-ci-o!“ Po-ta-tur Fel-le-

-pas-si-o Re-ge cru-ci-a-to
-o A-ce-to Gus-ta-to.

A-gno ve-ro mac-ta-to! Hos-te
Spi-ri-tu trans-mi-grat la-xa-to,

tri-um-pha-to Fit re-demp-ti-o
Con-di-tur iam tu-mu-lo,

Gau - di - o, Tri - pu - di - o, Sup - pli - ci - o, Ne - ce so - la - ti -
Sub - - se - - quen - ti sur - git pro - xi - mo in

-o Res - - tau - - ra - - to Pul - so pro - cul
sab - - ba - - to, Ba - ra - tro spo - li - - a - -

ab - di - to Re - mo - to Tra - di - to. O pi - a Sup -
- to A - de da - tur re - demp - ti - o.

-pli - ci - a, Que nos - tra cau - ti - o Sunt ex - emp - ti -
O mors sa - - cra, que nos - tra li - be - - ra - -

-o, Li - be - ra - ti - o — Et re - pa - ra - - ti - - o!
- ti - - o Es et re - pa - ra - - ti - - o!

Latin tropes of Mors were not the only texts which were added to Perotinus' clausula. Very early in the history of the motet poets began adding secular French texts as well as Latin. This gave the motet a new social function, removing it from the confines of the liturgy, and establishing it as a secular amusement. The texts resemble those of monophonic love songs, and have obviously shed any connection with the meaning of the tenor. Figure 26 illustrates a two part French motet on Mors.

Later in the thirteenth century the strange practice evolved of using Latin and French texts simultaneously in the upper voices. These texts were set to dance rhythms, which sounded against the solemn Gregorian chant, creating a fantastic play of the imagination. Hugo Leichtentritt remarks that this weird form must have "delighted the people who reveled in those grotesque heads of animals and demons, in those curiously distorted human faces carved in stone which are so strange an ornament of the Gothic cathedrals."¹⁶⁰

It is evident from the foregoing discussion that the medieval attitude toward artistic creation was very different from our own. A motet obviously could never function as an expression of an individual artist; it belonged to an intellectual collective, whose members could treat it as they pleased. Thus, as Finn Mathiassen points out,

A thirteenth-century motet is not a work of art in the modern absolute sense of the word, but a fluid esthetic phenomenon, a series of more or less diverging, but fully equivalent versions of a model... Thus, no existing version of a motet can claim to be more original or valuable than any other. This is in perfect harmony with scholastic philosophy according to which the beautiful

¹⁶⁰Hugo Leichtentritt, Music, History, and Ideas (Cambridge: Harvard University Press, 1938), p. 57.

noucoz ne sai se ia nul bien me feront q'oncoz
 nul en nen ai . noz

un mal sui espris qe iainz mouz u pris qe
 tant ai apuis qe nul ne puet cunstre ne mouz
 en pris usqul air apuis destre si lo pris de fine amor
 qe de hui ne sou encrepris vilain mal apuis
 men ont mouz repuis mes entel lai pris qe qe
 aut endre qul mac us cerrel qe iainz la plus

Fig. 26--Two-part French motet on Mors.

bele qz loir en ce pais. Noz
 Mais qanz vobz est floriz ac lor cel ciliz
 chanon n'oz conuenc par dueye loiz damenc
 cel la fin ie uiet d'auce met se carme et est
 fache ia touz m'ens li maus d'auce q' n'ocure
 q'oncel en ma vie d'auce nei confort mal se
 ie nai uolre n'ye uolre amee uolre de post
 D'auce sanz amee uol m'anz ma

could not be specific to any individual work of art or any form of art: all things created were wrapt in a garment of beauty, and beauty arose or could arise whenever man in imitation of God reproduced himself in the outer world, whether through crafts or through what we today call art.¹⁶¹

CONCLUSION

The history of art in the Middle Ages is a history of a world in which the religious and the secular have been isolated certain principles. The first of these is the fact that all three kinds of art were based on the same tradition of the Church. The second is that the religious and the secular were based on the same ground-plan and the same Christian tradition. For the religious the ground-plan was the form of the church, and for the secular the ground-plan was the form of the world. The religious and the secular were based on the same ground-plan and the same Christian tradition. For the religious the ground-plan was the form of the church, and for the secular the ground-plan was the form of the world.

The influence of Plato's concepts and Aristotelian methods into the Christian tradition deeply influenced the intellectual work of the medieval philosophers and the structure of the medieval world of thought. Their attempt to reconcile faith and reason as a basis for religious and aesthetic concepts which became the primary principles of the structure, the medieval and the great philosophical tradition.

The medieval philosophers thought of God as a rational being, the Creator of a world which was a product of reason; he was the one who created the world by means of an architectural plan.

¹⁶¹Mathiassen, p. 38.

CHAPTER VII

CONCLUSION

In seeking to define the essence of Gothic style in music, architecture, and philosophy, we have isolated certain essential principles. The first of these is the fact that all three forms of expression were rooted in the common tradition of the Christian religion, and utilized its doctrine as the basis for their varied structures. For the cathedral the ground-plan was the form of the Christian basilica; for the motet, the foundation was the Gregorian chant; and for the philosophical structures the base was the accumulation of Scriptures and patristic writings.

The infusion of Platonic concepts and Aristotelian methods into the Christian tradition deeply influenced the intellectual systems of the medieval philosophers and the artistic structures of the architects and composers. Their attempts to reconcile faith and reason gave rise to religious and aesthetic concepts which became the ordering principles for the architecture, the music, and the great philosophical treatises.

The Scholastic philosophers thought of God as a rational force, the Creator of a world based upon principles of reason; He was the master-builder who had created the world by means of an architectural science based upon mathematics. The cathedral was the concrete manifestation of these mathematical ideas, while music was the reflection in sound of the same architectural system. The diagram in Figure 27 compares the elevation of a cathedral, based upon concepts of

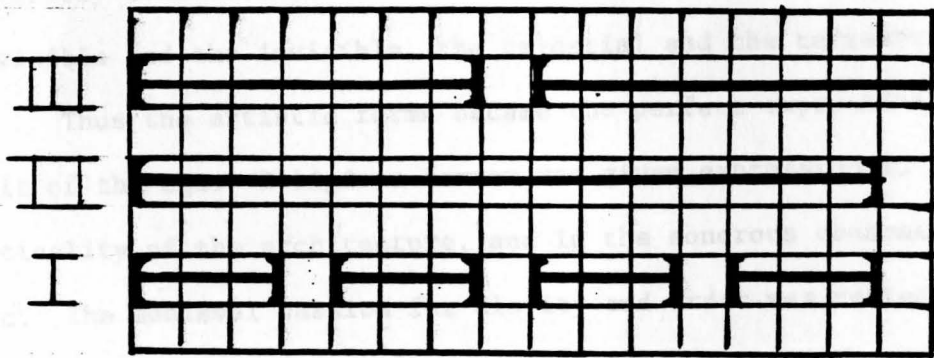
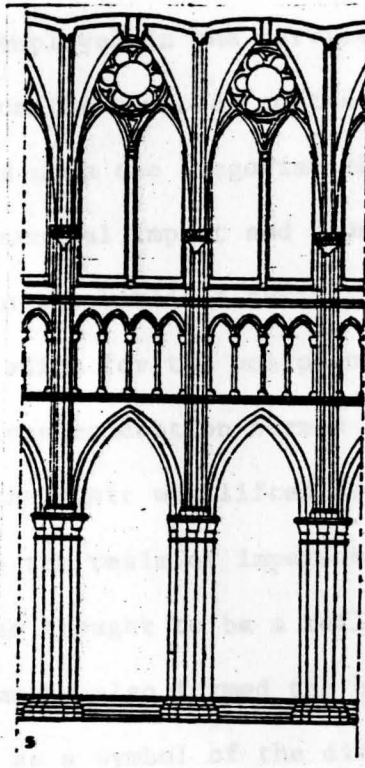
ratio and proportion, to the "elevation" of a motet, transcribed into graphic form. It is obvious that a definite analogy exists between note durations and pillars, and between rhythm of the motet and the "rhythm" of the architecture. The tenor voice may be compared to the pillars which provide the foundation of the cathedral superstructure, the duplum is analogous to the triforium gallery, and the triplum can be represented by the clerestory windows.

Formal structure was equally important in the writings of the medieval philosophers. Each article within a Summa assumed a definite form, a visual articulation of the page, with each of the numbered assertions being balanced by a numbered response.

This exact and systematic division of thought in the philosophical treatises is reflected visually in the architecture and aurally in the music.

These structural elements--ratio, proportion, and systematic division--are fundamental to the evolution of the Gothic style, but only as means to an end. The dialectic in philosophy, the structural principles in architecture, and the techniques utilized in the composition of linear polyphony were methods devised to bridge the gap between matter and spirit. Their forms became vehicles to lead the mind toward the comprehension of the divine order.

For the men of the Middle Ages the cathedral was the sum of revelation. It was an image of the world, a summary of history, and a mirror of the moral life. Moreover, it was the image of the heavenly Jerusalem, the kingdom of eternal bliss. Sculpture, stained glass, and music combined to impress the spiritual reality upon all of the senses.



III represents the triplum.
 II represents the duplum
 I represents the tenor voice.

Fig. 27--Comparison of elevational structure of cathedral and motet

^{a1} Grodecki, Gothic Architecture, p. 16.

All artistic stimuli were employed in the service of God so that man's mind might raise itself from the temporal to the spiritual realm.

Sacred music, based upon the Gregorian chant, possessed a dogmatic import both from musical impact and from religious application, particularly as embodied in the biblical texts. With the liturgical melody supplying the foundation for the polyphonic composition, there was a contemplative religious conception formed in the mind of the listener. Consequently, the music was lifted from the realm of subjective emotionality to the realm of impersonal transcendentalism. Furthermore, this music was thought to be a reflection of theological truth, since the laws of music also formed the basis of the cosmic order. Liturgical music, as a symbol of the divine liturgy, assumed a mystical function. Throughout the Middle Ages the liturgical service was closely connected to the music of heaven, reflecting the duality of the visible and the invisible, the celestial and the terrestrial.

Thus the artistic forms became the perfect expression for the spirit of the age. Religious fervor was given expression in the soaring verticality of the architecture, and in the sonorous consonances of the music. The medieval passion for clarity and order was reflected in the principles of construction of the cathedral and the motet. But it was the potent combination of these two factors--religious mysticism and Scholasticism--that provided the essential motivation; it was a unique interaction of idealistic and technical factors which provided the Gothic style.

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