Early Fifteenth-Century Painting

Brunelleschi and Scientific Perspective

In addition to establishing the basis for Renaissance architecture, Brunelleschi is credited with the invention of linear perspective. Giotto and other fourteenth-century painters had already used oblique views of architecture and natural settings to create an illusion of spatial recession on a flat surface. But their empirical system had not provided an objective way to determine the relative sizes of figures and objects on a picture plane or the surface of a relief. Brunelleschi's invention gave artists a mathematical technique that would enable them to pursue the Renaissance ideal of creating a space that would appear to replicate nature. Although the paintings Brunelleschi produced to illustrate his new discovery are lost, they have been described by Leon Battista Alberti (c. 1402-72) in *Della Pittura (On Painting),* written in about 1435. The technique was immediately taken up by the most progressive artists of the fifteenth century.

Masaccio

Holy Trinity Of the first generation of fifteenth-century painters, it was Masaccio who most clearly assimilated the innovations of Giotto and synthesized them into a new monumental style. His fresco of the *Holy Trinity* (fig. 15.12) in the Church of Santa Maria Novella in Florence uses not only the new perspective system, but also the new architectural forms established by Brunelleschi. Its single vanishing point is located at the foot of the cross, corresponding to the eye-level of the observer. Orthogonals, provided by the receding lines of the barrel-vaulted ceiling, create the illusion of an actual space extending beyond the nave wall. This pictorial space is defined on the outside by two Corinthian pilasters supporting a lintel, above which is a projecting cornice. The pilasters frame a round arch supported by composite columns.

The interior is a rectangular room with a barrel-vaulted ceiling and a ledge on the back wall. Below the illusionistic interior, a projecting step is supported by a ledge held up by Corinthian columns. Framed by the columns, a skeleton lies on a sarcophagus. The inscription above reads: "I was once what you are. You will be what I am." This kind of warning to the living from the dead, called a *memento mori,* or "reminder of death," had been popular in the Middle Ages and continued in the Renaissance. One purpose of the warning was to remind viewers that their time on earth was finite and that belief in Christ offered the route to salvation.

The spatial arrangement of the figures in the *Holy Trinity* is pyramidal, so that the geometric organization of the image reflects its meaning. The three persons of the Trinity-- Father, Son, and Holy Spirit-- occupy the higher space. God stands on the foreshortened ledge, his head corresponding to the top of the pyramid. He faces the observer and stretches out his hands to support the arms of the cross. Between God's head and that of Christ there floats the dove, symbol of the Holy Spirit. As in Giotto's *Crucifixion*, Masaccio has emphasized the pull of gravity on Christ's arms, which are stretched by the weight of his torso, causing his head to slump forward. His body is rendered organically, and his nearly transparent drapery

15.12 Masaccio, The Holy Trinity. 1425. Fresco, 21 ft 9 in x 9ft 4in (6.63 X 2.85 m). S. Maria Novella, Florence. Tommaso di Ser Giovanni di Mone (1401-28) was nicknamed Masaccio ("Sloppy Tom") because he seemed to neglect everything, including his own appearance, in favor of his art In 1422 he enrolled in the painter's guild of Florence, and in 1424 joined the Company of St Luke, a lay confraternity consisting mostly of artists. By his death at age twenty-seven or twenty-eight, Masaccio had become the most powerful and innovative painter of his generation.

defines his form. Above and below the cross, triangular spaces geometrically reinforce the triple aspect of the Trinity.

Standing on the floor, but still inside the sacred space of the barrel-vaulted chamber, are Mary-- who looks out at the viewer and gestures toward Christ-- and St. John, in an attitude of adoration. Outside the sacred space, on the illusionistic step, kneel two donors, members of the Lenzi family who commissioned the fresco. They form the base of the figural pyramid.

The Renaissance convention of including donors in Christian scenes served a twofold purpose. In paying for the work, the donors hoped for intercession with God or Christ on their behalf. Their presence was a visual record of their donation, which expressed their alliance with the holy figures in a sacred space. In the *Holy Trinity,* the donors occupy a transitional space between the natural, historical world of the observer, and the spiritual, timeless space of Christ's sacrifice.

The Brancacci Chapel

15.13 View of the Brancacci Chapel (before restoration), looking toward the altar. S. Maria del Carmine, Florence. Masaccio worked on the Brancacci Chapel in the 1420s. He received the commission only when the older artist Masolino, whose *Temptation of Adam and Eve* is on the right pilaster, left Italy to work in Hungary. After Masaccio's untimely death, the frescoes were completed by a third artist, Filippino Lippi. Lippi completed most of *St. Peter in Prison* and the large lower fresco on the left wall (see fig. 15.15).

Masaccio's other major commission in Florence is the fresco cycle illustrating the life of St. Peter in the Brancacci Chapel, in the Church of Santa Maria del Carmine. Masaccio used a new lighting technique called chiaroscuro (from the Italian *chiaro,* or "light" and *scuro*, or "dark"). This is the use of light and shade, rather than line, to model forms and create the illusion of mass and volume.

In *Adam and Eve*, Masaccio created the two most powerful painted nudes since antiquity. Eve's pose is derived from the type of Greek Venus illustrated in figure 15.14. The artist

15.14. The *Medici Venus*, 1st c. CE. Marble, 5ft ¼" high. Galleria degli Uffizi, Florence

has transformed the figure of the modest goddess after her bath into an extroverted, wailing Eve who realizes what she has lost and covers her nakedness in shame.

The more introverted Adam covers his face and hunches forward. His exaggerated right shoulder and the extended backward curve of his right leg emphasize his reluctance to face his destiny. Adam and leave the gateway to Paradise behind them at command of the foreshortened, swordbearing archangel Michael.

15.15 Left side of the Brancacci Chapel, S. Maria del Carmine, Florence (after restoration 1989). The scene on the upper left of the pilaster is *The Expulsion from Eden* (1425), and below is *5t. Peter in Prison.* The large scene to the right of the *Expulsion* is from the New Testament book of Matthew (17:24-7), in which Christ arrives at the Roman colony of Capernaum, in modern Israel, with his twelve apostles. A Roman tax collector asks Christ to pay a tribute to Rome. This biblical event was topical in Florence in the 14205 because taxation was being considered as a way of financing the struggle against the imperialistic dukes of Milan. Below, St. Peter preaches and raises a boy from the dead. The two scenes on the altar wall (far right) show *St. Peter Baptizing* (above) and *St. Peter Curing by the Fall of his Shadow* (below). All the frescoes are illuminated as if from the window behind the altar. As a result, the light consistently hits the forms from the right, gradually increasing the shading toward the left. So monumental were the forms created by Masaccio in these frescoes that Michelangelo practiced drawing them in order to learn the style of his great Florentine predecessor.

Masaccio's characteristic use of massive draperies can be seen in the large, horizontal fresco of the *Tribute Money* (fig. 15.15), immediately to the right of the *Expulsion.* The fresco is divided into

three events. Occupying the largest, central section is Christ. He faces the viewer surrounded by a semicircle of apostles. They wear plain heavy drapery, whose folds and surface gradations are rendered in *chiaroscuro*. Seen from the back, wearing a short tunic, and formally continuing the circular group around Christ, is the Roman tax collector. Horizontal unity in the central group is maintained by strict isocephaly. The foreshortened halos conform to the geometric harmony of Christ and his circle of followers. They both repeat the circular arrangement of figures and match their convincing three-dimensional quality.

The psychology of this painting is as convincing as its forms. Christ has no money with which to pay the tax. He tells St. Peter (the elderly, bearded disciple in yellow green on his right) to go to the Sea of Galilee, where he will find the money in the mouth of a fish. St. Peter's not unreasonable skepticism is masterfully conveyed by his expression and gesture. A close look at his face reveals his displeasure with Christ's instructions. The corners of his mouth turn down, his jaw juts forward, and his left eyebrow is raised in doubt. His gesture-- echoing Christ's outstretched arm and pointing finger with his right hand, while drawing his left arm back in protest-- expresses emotional conflict and crisis of faith.

On the far left, separated by space and distance from the central group, is the radically foreshortened figure of St. Peter retrieving a coin from the fish. At the right, St. Peter, framed by an arch, pays the tax collector. Masaccio has thus organized the narrative so that the point of greatest dramatic conflict-- between Christ and St. Peter-- occupies the largest and most central space, while denouement takes place on either side.

A Distant Haze

Aerial, or **atmospheric, perspective** is a painting technique based on the fact that objects in the distance appear to be less distinct and vivid than nearby objects. This is because of the presence of dust, moisture, and other impurities in the atmosphere. The artist may therefore use fainter, thinner lines and less detail for distant objects, while depicting foreground objects with bolder, darker lines and in greater detail. The artist may also create the illusion of distance by subduing the colors in order to imitate the bluish haze that tends to infuse distant views. In his advice to painters, Leonardo da Vinci (see p.284) recommended that all horizons be blue, as his were. Masaccio also used atmospheric perspective. In the *Tribute Money* (fig. 15.15), for example, although the distant mountains are larger than the figures, they are less clearly defined.

Linear and Aerial Perspective Masaccio uses both linear and aerial, or atmospheric, perspective in the Brancacci Chapel frescoes. That he has set his figures in a boxlike, cubic space is clear from the horizontal ground and the architecture at the right of the *Tribute Money*. To find the vanishing point of the painting, extend the orthogonals of the buildings at the right, and the receding line of the entrance to Paradise in the *Expulsion*. The orthogonals meet at the head of Christ, who is also at the mathematical center of the combined scene. Rather than provide the vanishing point within a single frame, as he had done in the *Holy Trinity*, in the Brancacci Chapel Masaccio unified several scenes through a shared perspective construction. The diminished figure of St. Peter on the left and the gradually decreasing size of the trees indicate the use of linear perspective to create the illusion of a spatial recession far into the distance, beyond the Sea of Galilee. The shaded contours and slightly blurred mountains and clouds are partly the result of damage caused by centuries of burning candles and incense in the chapel. They also, however, exemplify Masaccio's use of aerial perspective to suggest their distance in relation to the monumental figures in the foreground.

Masaccio's frescoes are the true heirs of Giotto's Arena Chapel. For both artists, landscape and architecture are secondary to the monumental and dramatic character of the figures. But Masaccio has increased the depth of his painted spaces to create the impression of a natural landscape, rather than the narrow, stagelike space of Giotto. With his use of one-point perspective, Masaccio laid the foundations of Renaissance painting.

Lines of Vision

The observed fact that distant objects seem smaller than closer ones, and that the far edge of uniformly shaped objects appear shorter than the near edges, determined the Renaissance theory of linear, or geometric, perspective. This provided artists with a mathematical method for depicting figures and objects as if they were at increasing or decreasing distances from the viewer.

Brunelleschi conceived of the picture plane (the surface of a painting or relief structure) as a window. The frame of the painting acts as the window frame. The contour lines of rectilinear objects (e.g. architectural features such as roofs, walls, or rows of columns, are extended along imaginary "lines of sight," which are perpendicular to the picture plane. Such lines are called orthogonals (from the Greek *orthos,* meaning "right" or "straight" and *gonia,*

meaning "angle"). They converge at a single point, known as the vanishing point. This point usually lies on the horizon, corresponding to the viewer's eye-level. However, it can be anywhere inside the composition or even outside it, depending on the artist's organization of the picture space and content. Such a system is known as one-point perspective.
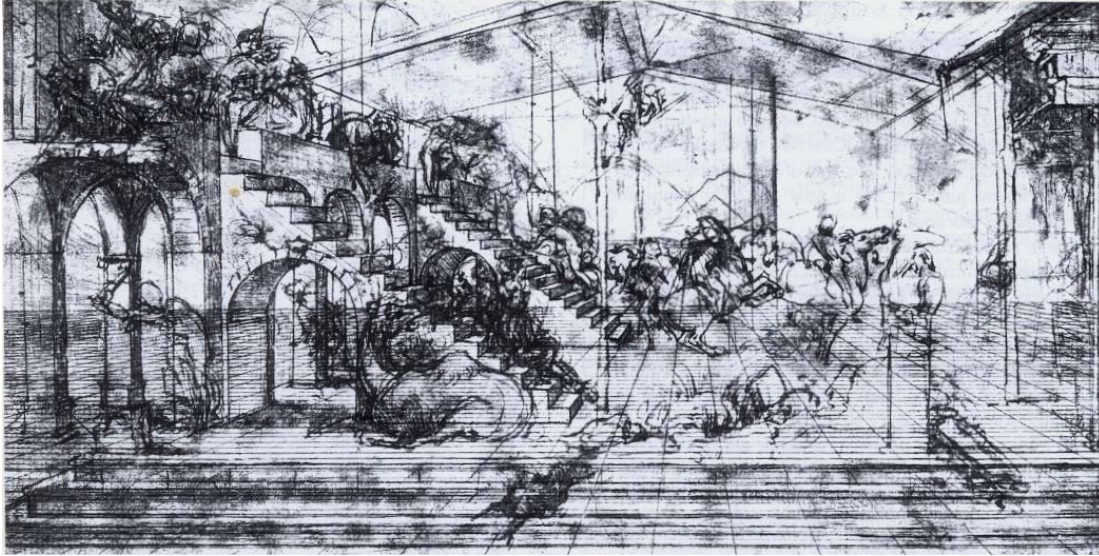
15.5 Leonardo da Vinci, preparatory drawing for the *Adoration of the Magi*, c 1481. Leonardo created a perspective grid by drawing a series of horizontal lines parallel to the picture plane. Then he drew a series of lines perpendicular to the horizontals and converging at the vanishing point, which is just to the left of the figure on a rearing horse. All architectural forms in the study are aligned with the grid, so that the sides of the buildings are either parallel or perpendicular to the picture plane.

Artists using Brunelleschi's system usually made perspective studies in the planning stages of their work. Most were on paper and are now lost. Leonardo da Vinci's study, or preliminary drawing, for the *Adoration of the Magi* (fig. 15.5) allows us a rare look at an artist's working plans laid out in schematic form.
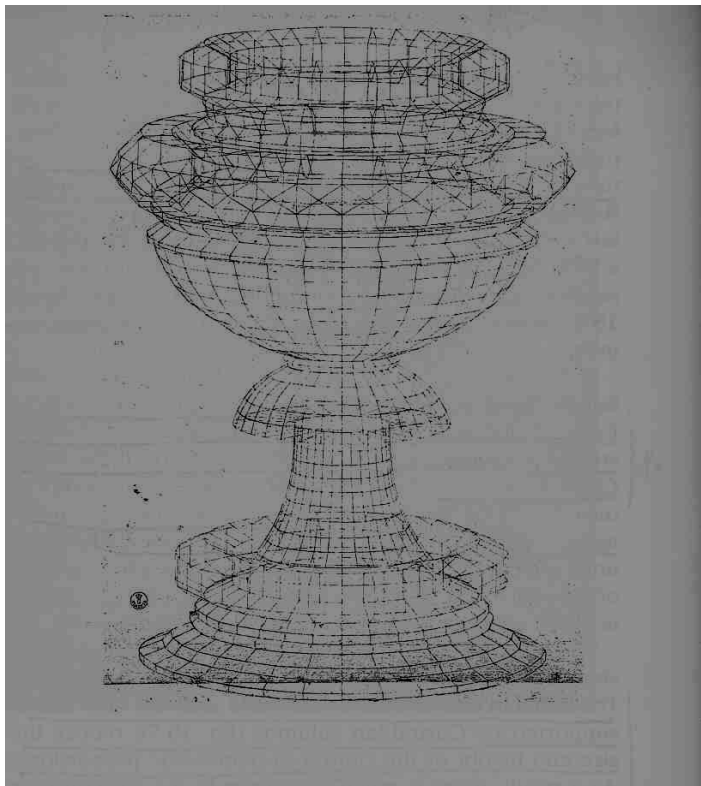
Linear perspective permitted Renaissance artists to fulfill their ideal of creating the illusion of nature on a flat surface. Another fifteenth-century painter who delighted in solving perspectival problems was Paolo Uccello (1397 - 1475). In his drawing of a chalice in figure **15.9,** Uccello uses geometric shapes, mainly squares and rectangles, to create the illusion of spinning motion in a rounded, transparent object.

15.9 (left) Paolo Uccello, Perspective drawing of a chalice, c. 1430-40. Pen and ink on paper, 13 3/8 x 9 ½ in. Gabinetto dei Disegni e Stampe, Galleria degli Uffizi, Florence. Vasari criticized Uccello for his obsession with mathematics and perspective, which , he said, interfered with his art. According to a popular anecdote, they also interfered with his marital life. On being called to bed by his wife, Uccello allegedly extolled the beauty of "la prospettiva" (perspective)—a feminine noun in Italian.

15.10 (right) Andrea Mantegna. *Dead Christ.* c. 1500. Tempera on canvas, 26 ¼ " X 31 7/8" (67.9 X 81 cm). Pinacoteca di Brera, Milan.

Some sixty years later, Andrea Mantegna (1431-1506) used perspectival theory to achieve a radical foreshortening of the *Dead Christ* (fig. **15.10).** The body is shown feet foremost with the wounds of the

Crucifixion clearly visible and the head tilted slightly forward by a pillow. Mantegna has idealized the body compared to a real corpse, and, through his mastery of perspective, achieves a haunting psychological effect.

A good example of the one-point perspective system in a relief can be seen in Ghiberti's second commission for the Baptistery in Florence. Between 1425 and 1452 he made reliefs for the east door (fig. 15.3). The lowest scene on the right depicts the *Meeting* of *Solomon and Sheba* (fig. **15.11)** on the steps of Solomon's temple. As was true of the competition reliefs, the *Solomon and Sheba,* in the context of fifteenth-century Florence, had political as well as Christian implications. Typologically, their meeting was paired with the Adoration of the Magi, for in both cases eastern personages (the Queen of Sheba and the Magi. respectively) traveled westward to honor a king (namely, Solomon and Christ). The biblical meeting of east and west was also related to political efforts in the fifteenth century to unite the eastern (or Byzantine) branch of the Church with the western branch in Rome.

15.11 Lorenzo Ghiberti, *Meeting of Solomon and Sheba*. Gilt bronze relief, 31 ½ X 31 ½ in (80 X 80 cm). This relief illustrates two techniques used by Ghiberti to create the illusion of depth. One is Brunelleschi's system of one-point perspective. The vanishing point is located at the meeting of Solomon and Sheba, at the center. The other combines the diminishing size of figures and objects with a decrease in the degree of relief. What is in lower relief appears more distant than what it is in higher relief.