Introduction

panels, to the haloes, or to the clothing of the figures. This decorative surface, like the raised plaster areas of the panel, caught and reflected the light from candles and oil lamps in a shimmering manner intended to intensify the otherworldly quality of the images and, more practically, to make them legible in the darker areas of churches.

Oil Painting

By the mid-fifteenth century Italian artists in Naples, Venice, and Florence began to incorporate the Flemish technique of oil painting into their repertoire. Although occasionally used on panel, oil painting was more often employed with a cloth base such as linen. In this technique pigments are suspended in an oil medium, often linseed oil, giving an easy fluidity of application and allowing corrections and adjustments as the painting progresses. Using oils a painter could apply successive layers of paint to the surface. This not only made it easy to change the composition of the picture but also allowed greater richness of color, as the overlapping tones interacted with one another. The effect of light penetrating the various layers of paint or playing over the glazes that the painter also applied to the surface gives a luminous brilliance to the paintings that would have been appreciated by artists seeking an evermore naturalistic effect (see Fig. 8.24, page 389).

The Sculpture Workshop

Sculpture workshops were arguably the most complex and diverse of the Renaissance. A sculptor might choose to work in stone, wood, terracotta, plaster of Paris, papier-maché, wax, or bronze, although most limited themselves to one or two of these media. Moreover the work could be figural or purely decorative; free-standing or relief; a colossal exterior statue or a very small medal. The artist could be paid a specified amount of money for a figural work or a price per given unit of measurement if he were providing decorative sculpture such as moldings. Some sculptors cast bronze within the shop, others subcontracted out the casting once a finished model was ready. The shop could be a private one, owned by an independent master, or it could be one established under the auspices of a building committee for a large building in need of decoration, such as a cathedral. In the former case the artist could control and govern who worked in the shop, bringing in new talent as the need demanded and letting others go when there was no work. As with painting workshops, the result of this system of training under a master was designed to produce a uniform shop style, in which everything produced had the look of the master.

In a large, corporate shop, artists of different training, style, and even national background were often hired to work side by side in an effort to complete large decorative programs as quickly as possible. Although a certain amount of consistency would be lent to such programs by the initial selection of the artists and by the supervision of the capomastro, or head of the shop, it was more important to get the work done than to have complete uniformity of style, as Alfonso I’s triumphal arch in Naples (see Fig. 5.54, page 254) demonstrates. Nanni di Banco’s relief for the Arte dei Maestri di Pietra e Legname (Wood and Stone Workers’ Guild) in Florence (see Fig. 1.4, page 18) shows that there was also division of labor within the shop, with some artists adept at architectural detailing such as twisted columns, others being entrusted with the leafy details of capitals, and still others with figures.

Stone sculpture required the sculptor either to travel to the quarry himself or to send a trustworthy assistant in order to find a block of stone not only the right size and shape but also without imperfection such as veins of minerals which would jeopardize the structural integrity of the work once it was complete. The stone had to be quarried and shipped, often over large distances, requiring travel both by boat and by ox cart (Fig. 1.19). With tolls based on weight or size having to be paid along the way, it was important that the sculptor not order more than was necessary for the commission. Once the rough stone arrived at the shop, assistants could begin to block out the figure, using a model in wax or terracotta provided by the master or a rough drawing on the block itself. For figural sculpture, points were marked on the model, usually at the knees, the buttocks, and the shoulders. These points were then transferred and enlarged to the scale of the large block by mechanical and mathematical devices (Fig. 1.20). Similar techniques could also be used to replicate ancient sculpture.

The sculptor worked in from the block of the stone, constantly refining the form, first working with drills and pointed chisels and then progressing to chisels with finer and finer claws (cutting edges) as the carving became more delicate. Stone rough from the chisel had to be smoothed, using files and abrasives such as pumice. Finally polishing

L.19 Transportation of marble by ox-cart, shown in a nineteenth-century photograph
with straw and cloth gave the surface its smooth character which over time took on a luster. In some rare instances unfinished sculpture was actually installed (Fig. 1.21), giving the modern historian some idea of how the carvers went about shaping the figure from the large block and carving the stone. In most cases sculptors painted their completed marbles, either to clarify the separation of figures from background, in the case of relief sculpture, or to add naturalistic details of color to the white marble of figural sculpture (Fig. 1.22). Often this amounted simply to gold detailing of architecture, of drapery borders, and of haloes. Most of this polychromy has subsequently worn away or been effaced in later “cleaning” projects, leaving a quite misleading notion of how Renaissance sculpture originally looked.

Sculptors also worked in wood, a medium that has only recently received serious scholarly attention. Most wooden figures, carved from sections of the trunks of trees, were virtually life-sized. In order to prevent major cracks in the figures as the wood aged and slowly dried, the tree trunk was often hollowed out from the back, allowing the figure to be more pliable in responding to changes in temperature and humidity. Wooden sculpture could be pieced together from several logs, although such piecing seems not to have been the norm except for small-scale attributes held by the figure or for crucifixes, in which the arms of the figure extended out from the main core of the body and thus needed to be carved from separate pieces of wood. In all cases wood sculpture was completely painted, so that the figure imitated as accurately as possible the human form it represented. This required that the wood surface be covered with gesso or with a fine linen fabric, which itself was then covered with gesso; that plaster surface could then be colored much the same as a panel painting. It was not unusual for a sculptor to subcontract out the painting of wooden sculpture to workshops that specialized in such tasks as part of mass production of devotional objects and painted furniture. Wooden statues were often completed by the addition of metal attributes (such as St. Peter’s keys, for example) or by actual clothing, heightening the sense that the naturally painted figure was an actual human presence. Not surprisingly, given the fragile and flammable nature of wood and of fabric, most of these wooden figures have been lost.

What remains, however, opens rich reconsideration of how this sculpture functioned as part of religious rituals such as processions and liturgical drama. Many figures were clothed in special costumes for festival days, blurring the boundary between the real and the represented. Some wooden crucifixes were carved with arms attached on pins, so that the body could be removed from the cross, the arms folded down, and the Christ “buried” as part of the liturgy for Good Friday (Fig. 1.23). Some of these crucified Christ figures were even carved with a smooth scalpel so that wigs of real human hair could be added, just as linens of real material were sometimes used.

Terracotta sculpture, like wood sculpture, was also brightly painted. The earliest extant examples of such sculpture come from the second half of the fifteenth century. Because of the fragile nature of terracotta very little remains of what must have been a sizable production in this medium. Generally independent figural sculpture in terracotta is life-sized (Fig. 1.24). During the fifteenth century the shop of Luca della Robbia developed a way of glazing terracotta sculpture so that it became quite durable and could be used for both exterior and interior spaces.
1.22 *Isabella of Aragon* (†), c. 1490, Francesco Laurana. Marble, height 17¾" (44 cm) (Kunsthistorisches Museum, Vienna)

1.23 (above) *Crucifix*, c. 1412–18 (†), Donatello. Painted wood, height 6' 6" (1.68 m) (Santa Croce, Florence)

Like many other statues carved in wood, this sculpture was overpainted with a brown pigment to simulate bronze by a later generation attempting to confer value on the work and to transform its realistic rendering of the human body into a classical one.

1.24 *Lamentation*, 1492–94, commissioned by Alfonso II of Naples from Guido Mazzoni for the Chapel of Alfonso II and Girolamo Orelia (now Chapel of the Sepulchre), Church of Montmartre, Naples. Terracotta

The life-size kneeling figure on the left is a portrait of the patron, Alfonso II, in the role of Joseph of Arimathea.
1.25  *Resurrection*, 1442–45, commissioned by a building committee of the cathedral from Luca della Robbia for a lunette over the door to the north sacristy, Florence Cathedral. Glazed and polychromed terracotta, 6' 7" × 8' 8¼" (2 × 2.65 m)

1.26  The lost-wax process

1.27  *Hercules*, 1470s, Antonio del Pollaiuolo. Bronze, height of figure 11¾" (30 cm); height of figure and base 17½" (44.1 cm) (© Frick Collection, New York)

The surface of the bronze is unfinished. Small, precious table bronzes such as this were regarded as collectors' items from the last decades of the fifteenth century, as a representation of the owner's fascination with, and knowledge of, antiquity.
Although the colors of the glazes were limited, they added brilliant polychromatic possibilities to this humble medium, and increasingly large-scale work in terracotta remained popular well into the sixteenth century—not only figures and reliefs (Fig. 1.25) but whole altarpieces as well.

**BRONZE SCULPTURE**

Bronze sculpture of the Renaissance varies in size from small medals which can be held in the palm of the hand to large free-standing public sculpture. There were two basic techniques of casting. For casting small solid figures, reliefs, medals, and coins, molten bronze was poured into a simple negative mold, most often of plaster, which had been made by encasing a positive model with wet plaster, letting the plaster dry and then carefully cutting the plaster mold from the original model. With care this mold could be used more than once.

A hollow cast technique was used for medium- to large-scale bronze sculpture. In this process, called the *lost-wax* (or *cire-perdue*) method (Fig. 1.26), the sculptor covered an original rough model with wax, which he then worked with the finer details of the sculpture. Subsequently he attached wax rods extending out from this finished model and surrounded it with plaster. Heating the whole form caused the wax to melt away from the interior shell through the empty spaces left by the wax rods. Bronze could then be poured into the space between the rough core and the resultant plaster mold, with air escaping through the same tubes which had allowed the wax to pour out. Air trapped in the mold prohibited the molten bronze from flowing completely through the form, causing an imperfect cast. Since the wax model was lost in the actual casting, any failure entailed restarting the process from the beginning. When the poured molten bronze had cooled, the mold had to be chipped away from the cast object. Only in the sixteenth century did sculptors perfect the making of master molds which allowed them to cast a copy of their finished molds rather than from the original. When the cooled bronze was freed from the mold the air tubes, now filled with solid bronze, had to be cut away and the entire rough surface of the bronze (Fig. 1.27) filed,
chased, polished and given a patina (sometimes varnish, sometimes colored oil) to enhance the luminous surface of the material. Before patinating, fine details of costume or of facial features could be incised into the bronze sculpture and gilding, if required, could be added. Given the technical complications of bronze casting, professional casters (sometimes bell-makers and at other times artillery specialists) were often given the job of turning the sculptor’s models into their final form—yet another example of the collaborative nature of artistic production in this period.

**Drawings**

Drawings served important functions in painting and sculpture workshops. They could be used to train the *garroni* to draw the figure—as Squarcione’s contract with his pupil Francesco indicates—or they could be records of motifs for use by both the master and his students (Fig. 1.28). These drawings were kept in notebooks, functioning essentially as model books which could be lent from studio to studio, facilitating the transfer of ideas and motifs from one artistic studio to another or even from one city to another. Drawings, some at full scale, were often employed by architects and sculptors as models for the assistants in the shop to use in completing large projects. Documents indicate that Jacopo della Quercia had full-scale drawings of his intentions for the *Fonte Gaia* (see Fig. 4.66, page 209) placed on an interior wall of the town hall in Siena, both so that his patrons would know what to expect of the finished fountain and so that his assistants would know what to carve during the master’s absences from the city. For obvious reasons no traces of such drawings remain: they were utilitarian steps in a process which, when complete, made them obsolete.

The history of drawings during this period suggests that they served an exclusively functional role until the beginning of the sixteenth century, when patrons, bent on forming a collection of work by artists of major importance, seemed satisfied, if not completely happy, to have a drawing by a chosen artist if they could not persuade him to deliver a painting. Thus Isabella d’Este pestered Leonardo da Vinci for a painted portrait, but received, ultimately, only a drawing. Vasari seems to have been the first person actively to collect drawings, which he pasted down in notebooks, then framed and even embossed with ink drawing of his own, as part of his record of the genius of the artists about whom he wrote (Fig. 1.29).

**Architecture**

Although the term “architect” does appear in some formal documents of this period, there seems not to have been a prescribed course of training for this position. Architects began their careers as sculptors (Lorenzo Maitani, Brunelleschi, Bernardo Rossellino, Michelangelo, Jacopo Sansovino) or as painters (Giotto, Bramante, Raphael). Some, such as Brunelleschi or Leonardo, seem to have had a thorough grasp of engineering; others most likely used master builders, whose practical expertise guided a building’s progress.