Vermeer's paintings are like those of no other artist: they record his inexhaustible pursuit of painting light. He was interested in capturing the way light defines surfaces, especially subtle surfaces: a girl's face, pearls, window glass, fabrics, polished metal. He was able to record optical nuances of colors more correctly than any other seventeenth-century painter. He made the important observation that shadows are not always brown and never quite black: by systematically introducing luminosity and color into each shadow, he depicted varying intensities of light, in what might be called a coloristic chiaroscuro. As a result, Vermeer's interiors are higher in key than those by his contemporaries. An important step in this direction had been taken by the previous generation of Netherlandish artists such as Terbrugghen and Honthorst, whose light color scheme still reflects an affinity for that of sixteenth-century Venetian painters (especially Veronese), though the northerners used a more orderly technique, with carefully placed accents of light. But Vermeer's consummate observation of optical effects was not achieved by any painter of his day, and not even explained scientifically until many years later.

Perhaps the most extraordinary characteristic of Vermeer's work is the way light is channeled, diverted, reflected with total logic from one surface to another, infusing space, color, and form with a luminous unity. A su-
Vermeer's Young Woman with a Water Jug (Cover, 7, 80, 91). Light plays on the numberless planes of the starched white linen in the girl's coif to indicate its weight and stiffness, and even contours are set off by a halo of light: the girl's far cheek is suggested more by a reflected glow than by shadow, and the blue of her skirt seems to tint the surrounding air. One of Vermeer's discoveries, in fact, was that blue heightens the sense of light, and in some of his paintings a small amount of blue seems to be present in every color, suggesting a scene defined by the daylight washing over every surface. The blue is especially noticeable in this painting; although the cool tone was certainly intended to dominate the warm ones (perhaps suggesting an overcast sky), it has probably intensified with age: here, as in all but Vermeer's earliest picture, the precious natural ultramarine occurs rather than the cheaper azurite used more frequently by Dutch artists, and ultramarine tends to fade less than other colors.

Over the years, the paint of the Young Woman with a Water Jug had begun to pull away from the canvas (81), a condition that was relatively simple to treat. The original surface, however, is extremely well preserved, and the painting exhibits all the delicacy and subtlety of Vermeer's technique. The light gray priming layer, which approximates the final tonality of the background wall, extends over the entire canvas and can be seen at the edges. In the lighted areas of the wall, this layer was thinly gone over with a paler shade of gray, and given a subtle blue tinge with a little ultramarine. Yellow ochre was added in the shadows and half-shadows. The window was probably painted in the following stages: the pattern of the lead mountings was laid out in dark gray-brown directly on the gray priming; then a semitranslucent layer of broken white was added in varying thinness to indicate light falling through the window-panes and was carried over the dividing lines to give them greater softness and tonal variety. Subsequently ultramarine, occasionally mixed with white lead, was glazed on to indicate more subdued light or the faint shadows cast by the ribs in the closed half of the window. In some places, yellow-ocher glaze was added, giving the transmitted light a green tinge. The only area free of ultramarine is the flesh tone of the girl's fingers behind the pane, but magnification reveals that they are bordered by a whitish-blue halo that increases the illusion of being seen through the glass—an example of Vermeer's almost uncanny sensitivity to optical laws.
In The Kitchenmaid (69), a work of Vermeer’s early maturity, his highly original definition of space and depth through color is already fully developed. His work is characterized by an intensely intellectual analysis of optical realism, which can create a compelling sensation of objects being seen, not simply depicted. This is different in quality from trompe-l’oeil paintings to which his pictures have been compared but which depended almost exclusively on craftsmanship. Throughout The Kitchenmaid, each touch of the brush contributes to the suggestion of depth and form. In the fleshtones, Vermeer uses a very slightly textured surface, with the brushstrokes imbedded in the paint. But in the still life in the foreground (82), the paint is more thickly applied: it is gradually built up into an almost tactile relief. Vermeer suggests the roughness of the bread by combining this relief with a scintillating surface created by a wide variety of touches of thick light paint—reflections of the daylight that plays over the nubbly crust. This way of handling reflections may have been inspired by outdoor observation since Vermeer used it systematically in the View of Delft (see Figure 30).

When Vermeer paints a brick wall (83), he blocks out its major colors and tones, then adds highlights that make the eye move over its surface at the same time as they suggest the distance and atmosphere separating it from the observer. This network of highlights is omitted on the whitewashed portions, since a white surface in sunlight tends to look flat and dazzling. In contrast, Pieter de Hooch (84, detail of A Dutch Courtyard, National Gallery of Art, Washington, D.C.) treats each brick individually. Details are supplied as they are known to be, rather than as they appear to the eye.
The pictures on this page illustrate the difference in pictorial technique between Vermeer and a typical contemporary. The overall tonality of Terborch's scene (57, 86) is much darker, and color is used decoratively to enliven the composition rather than as an essential part of it. Each detail is modeled with scrupulous and quite conventional thoroughness; the strokes are smoothed out with a blending brush. On the other hand, the painting by Vermeer shown in Figure 85 is constructed of light and color. The borderlines between areas of light and shadow are extremely subtle, varying from soft or blurred to sharp according to the distance and lighting; throughout there is a great restraint in modeling, which is suggested less by gradual transitions from one tone to another than by an interplay of colored shadows and carefully placed accents of light. Viewed at close range, these slightly varied highlights appear to have been minutely shaped with the brush and some are even surrounded by darker halos that increase their intensity.

In the still life from one of his latest works (63, 87), these highlights play an even greater role in creating the modeling: Vermeer leaves out transitional tones so that things are defined by bold contrasts of highlight and shadow, as, for instance, the crucifix. Unlike his contemporaries, Vermeer was not concerned that the smallest details should be understood, and in his late works the abstraction of objects reaches an extraordinary simplification. He becomes accustomed to visual formulas—almost a shorthand—and as a result we sometimes find few three-dimensional qualities in his late paintings.
The Girl Asleep is an early work, in which Vermeer was still experimenting with both technique and composition (see Figure 19). Some sections—such as the area above her head and, especially, the still life—have several layers of pentimenti. These parts are usually a little more in relief than the surrounding ones, and solvents used in the past to clean the picture had eaten through the original top layer and exposed the underpainting. In fact, the exact shapes of the glass and the brown vase in the foreground can no longer be distinguished. The white jug is so heavily loaded with several layers of paint that noticeable cracks have developed with age. The worn condition of the still life as a whole becomes apparent when it is compared to the better preserved Persian rug, where the out-of-focus quality delicately creates a perfect illusion of aerial perspective.

The Woman with a Lute (46) is another very worn picture and because of this had been heavily overpainted. Its general lack of luminosity is especially noticeable when it is compared with the superbly preserved Young Woman with a Water Jug (80). An example of overpainting is the girl’s head-dress shown in Figure 89. It was removed in 1944; Figure 90 shows the present condition of the area, with a minimum of restoration. Better preserved parts are the curtained window and the map.

The X-ray of the Young Woman with a Water Jug on the facing page (91) indicates that, from the beginning, Vermeer had a clear conception of exactly how the picture should look. The design was executed with a minimum of changes, and each stroke was systematically added to develop the final effect: for instance, the white paint (which contains lead and shows up as light areas such as the girl’s
headdress in the X-ray) was applied in finely varying densities to indicate minute variations in intensity of light. By contrast, the X-ray of a painting by Terborch (57, 92) shows a much-reworked image. The picture seems also to have been painted more from dark into light; the only similarity with Vermeer is in the restraint of brushwork.

Figure 93 is an X-ray taken by C. F. Louis de Wild in 1933 of the Woman with the Red Hat (37), one of the few paintings by Vermeer on a wooden panel rather than canvas; it shows Vermeer's usual restrained brushwork. It can be seen (94) that Vermeer applied his underpaint directly over a portrait of a man by another artist (first turning it upside down). This is not unusual in the seventeenth century and thereafter: artists welcomed opportunities to avoid the tedious preparatory priming of the surface. This portrait of a man was executed in vigorous brushwork of great sureness, suggesting an artist influenced by Rembrandt. There is a remote possibility that Vermeer's Girl with a Flute, also in the National Gallery and painted on a panel of similar dimensions with a similar crackle pattern on the surface, covers the pendant to this portrait.

By comparing the X-ray of the Girl Asleep (95) to the painting itself (19), we can see how, early in his career, Vermeer struggled with various problems of composition: he originally painted a dog in the half-open door, its feet on the threshold of the room. But he abandoned this means of leading the spectator's eye into the picture for a more subtle one: he placed a chair in the foreground, the slanted line of its back suggesting depth as well as calling attention to the girl. The framed picture on the wall behind the door was changed more than once, each time made smaller and thus less conspicuous and distracting.
Most artists with a distinct individual style and good market value are targets for forgers. Of the numerous forgeries in the style of Vermeer, those by Han van Meegeren (1889-1947) are by far the most successful and of real aesthetic merit. Van Meegeren's story is not very different from that of other art forgers: failing in his career as an artist, he successfully applied his talents to turning out "old master" paintings. But in forging Vermeers, he went beyond the achievements of others. His painting of Christ at Emmaus (97) is an example of his cleverness. Rather than simply selecting elements from Vermeer's well-known pictures and recombining them, he decided to fill the gap in Vermeer's early development that had puzzled art historians, and in pictures such as this he "re-created" the kind of paintings they hypothesized the young Vermeer had done: religious scenes reflecting the influence of Caravaggio indirectly through engravings or through works by his Netherlandish followers. Van Meegeren made his forgeries as technically perfect as possible: this picture is painted on a seventeenth-century painting that had been partly eradicated but whose surface retained a genuine age crackle. He used an artificial resin (discovered at the end of the nineteenth century) that, when exposed to heat for a few hours would become brittle enough to incorporate the original craquelure transmitted from underneath. The cracking was then increased by rolling up the canvas.

Though now, through the perspective of time, we can see many flaws in his work, van Meegeren was trapped by his failings in neither art history nor science. He had sold one of his Vermeer forgeries to Field Marshal Göring, and after the war he was put on trial as a collaborator for disposing of the country's "artistic patrimony." Only to clear himself did he confess the truth; he was imprisoned one year for deliberate fraud.
Van Meegeren's Christ at Emmaus (97) was meant to suggest Vermeer's early dependence on works by Caravaggio, such as the Supper at Emmaus (96). But the refined color scheme—blues, yellow, grays—and the use of dotted highlights in the still life (99) are both characteristic of Vermeer's later work; the still life in his earliest known picture (98) is much more conventionally depicted. In addition, such sentimental facial expressions are not to be found in any picture by Vermeer.
A note on the literature


I am grateful for help of various kinds to Hubert von Sonnenburg, Charles Seymour, Jr., and E. H. Gombrich.

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Preceding page and right: As one of the leading innovators of later Chinese art, monk-painter Tao-chi (1641-about 1710) revitalized traditional subject matter and techniques to express his spontaneous, joyful view of nature. This album in twelve leaves is of striking quality and is unusual in its complete representation of Tao-chi’s artistic range: landscapes, figures, flowers, vegetables, and bamboo. Datable by style, seals, and signature to about 1697-1700, ten of the leaves are in shimmering watercolors, two in rich monochrome. Each leaf displays a poem or humorous commentary in a script chosen to harmonize or contrast with the picture, making it an engaging combination of poetry, calligraphy, and painting. Following are two lines from “Peach Blossoms at My Window” (lower left): Spring breeze and gentle rain come to the window of my mountain lodge/Even now I paint peach blossoms in their colorful attire. . . . The album will be published in full-color facsimile in October. Height of each about 10 7/8 inches. The Sackler Fund, 1972.122 a-l

Opposite page: In Japan the theme of wild pampas grasses, their feathery yellow tassels bending in the breeze, and white bush-clover has always evoked the melancholy mood of an autumn evening. The anonymous artist of our screens, active around the middle of the seventeenth century, works in the tradition of the Rimpa school, emphasizing simplified shapes and rich colors for sheer decorative effect. In this pair of six-fold screens he has blown up a tiny corner of nature and artfully arranged alternating clumps of clover and grasses in a stylized pattern, isolated against a solid gold ground. The crowded right-hand screen (above) contrasts markedly with the more open spaces of the left one (below). Height of each 5 feet 6 1/2 inches. Purchase, Wiesenberger Foundation Gift, Louis V. Bell Fund, Dorothy Graham Bennet, Pfeiffer, and Seymour Funds, 1972.180.1, 2
Far Eastern Art

Autumn Grasses
Left: A new ivory, dating around 1200, depicts the Tree of Jesse, or genealogy of Christ, a theme based on Isaiah 11:1. Only the three essential figures are represented as the axis of the composition: Jesse, from whom the Tree sprouts, the Virgin, and the Christ child, with the seven gifts of the Holy Spirit. Flanking the Virgin are the prophet Isaiah and St. Fulbert, eleventh-century bishop of Chartres, whose theological writings and hymns sparked a revival of interest in the ancestry of Christ.

Because it has a double row of sawn-off teeth on the back, we believe that this thin plaque was carved from a liturgical comb divided in half. Some other ivory plaques stylistically associated with ours – also with openwork borders and carved from combs – are thought to have come from the cathedral of Bamberg in Franconia, Germany. Like ours, their original function is not yet known.

This piece is one of the first to be owned jointly by two institutions: the Metropolitan and the Louvre; it will alternate between them for exhibition every five years. This leads the way for possible future international cooperation among museums seeking to keep important works of art in the public domain. Height 3\(\frac{3}{4}\) inches. Purchased jointly by the Metropolitan Museum (The Cloisters Collection) and La Réunion des Musées Nationaux de France (Palais du Louvre), 1973.70

Opposite page: One of several surviving Netherlandish reliquary cribs known as repos de Jésus, this richly carved and painted oak cradle is decorated with scenes from the Life of Christ and with silver-gilt angels and bells. It retains most of its original components, including a silk coverlet and pillow embroidered with the Lamb of God in gold thread, seed pearls, and enamels.

Cradles of Jesus were devotional objects in the Netherlands during the fifteenth century and the first half of the sixteenth that were sometimes presented to nuns taking their vows. Height 12\(\frac{1}{2}\) inches. Collection of Ruth and Leopold Blumka
As painters, draughtsmen, and printmakers Annibale Carracci, his elder brother Agostino, and their cousin Ludovico brought the Bolognese school to the first rank as an Italian artistic center. Their working careers connect the sixteenth with the seventeenth century; breaking with mannerist conventions that dominated Bolognese art in the second half of the sixteenth century, they evolved a noble classical style that was firmly based on the study of nature. All three were fine draughtsmen and Annibale was one of the finest in the whole history of Italian art. Their constant recourse to nature is documented in figure drawings after life, landscape notations, scenes of popular life, and caricatures. In fact, modern caricature originated in the studio of these artists.

In July 1972 the Metropolitan Museum was fortunate enough to acquire in London six exceptionally beautiful drawings by the Carracci—five by Annibale and one by Agostino, splendid additions to the excellent Carracci drawings and prints already in the Museum’s collection.

Right: This boy and girl, their heads observed at two different angles, do not have the air of posed studio models. Their expressions and attitudes have been recorded with a directness of vision that is prophetically “modern”—yet this drawing dates from the 1580s. By Annibale Carracci. Red chalk, 8 7/8 x 12 1/2 inches. Harris Brisbane Dick and Rogers Funds, 1972.133.3

Far right: Though professionally concerned with idealized representations of religious and mythological subjects, Annibale Carracci (1560-1609) was a sharp and sympathetic observer of popular life. Here he has dashed off a charming domestic scene—a mother warming her child’s nightdress before a fire. 12 7/8 x 9 1/4 inches. Purchase, Mrs. Vincent Astor and Mrs. Charles Payson Gifts, Harris Brisbane Dick and Rogers Funds, 1972.133.2
Aside from being a superb example of the gunsmith’s craft, this fowling piece is of outstanding historical importance: it is one of three known flintlock guns from the Le Bourgeois workshop in Lisieux, Normandy, in which this ignition system was invented. (The flintlock, incidentally, became the dominant firearm for the next 200 years, and was a deciding factor in the early settlement of North America.)

The ebonized pearwood stock of this example is elegantly carved, mounted with gilt bronze and inlaid with silver and mother-of-pearl. Incorporated into gold scrollwork on the blued background of the barrel is the mark of Pierre Le Bourgeois (died 1627). The three Le Bourgeois brothers – Marin (died 1634), Jean (died 1615), and Pierre – ran their family shop in Lisieux, though Marin also had working facilities in the Louvre because of his appointment in 1605 as court gunmaker. This flintlock seems to have been made for the young Louis XIII (reigned 1610–1643) around 1615: it bears his crowned monogram inlaid in silver and – stamped into the wood of the stock – the inventory number 134 of his famous cabinet d’armes, a gun collection that was the reason for his nickname Louis l’arcuebusier.

Length 55 inches. Rogers and Harris Brisbane Dick Funds, 1972.223