Aelana Cordovera

History of Oil Painting

In tracing the recorded history of oil painting we meet with several diverse theories. The earliest traces are found in the North, among the Flemish painters, where oil painting was perfected, due to the damp climate, which was unsuitable for fresco. Later the Italians developed the art to meet the needs of their drier climate, which for a long time was thought more suited to fresco and egg tempera.

A 15th century manuscript *The Mappae Clavicula*, Theophilus from the 12th century and Cennini from the 14th century also mention painting with drying oil mediums, or rendering a painting waterproof with these oils.

Early Oil Painting

The Ancients are known to have used drying oils as varnishes for paintings.1 Pliny describes Apelles employing drying oil varnishes.2 Dioscorides mentions walnut oil and poppy oil, hemp seed and linseed oils. Hippocrates also mentions linseed oil as a medicine. Galen describes linseed and hemp seed oils, walnuts and their drying qualities.3

So the qualities of drying oils were known from an early time, medicinally, as a varnish and to preserve gilding, encaustic and egg tempera painting. At the time of Charlemagne the Lucca manuscript monks were experimenting with these oils, and various resins, linseed oil and sandarac and mastic resin boiled in the oil.4

The treatises of the 12th and 13th centuries show Cimabue adopting drying oils from the Greeks. The knowlege was inherited from Agnolo Gaddi by Cennini, and little altered in the early part of the 15th century.5 This slow progress of the Italians is explained by their satisfaction with egg tempera. Theophilus too, probably represents the Northern followers of the Byzantine school. In the fifteenth century Van Eyck used nut or linseed oil and in the 16th century the Italians adopted a different system, using essential oil varnishes.

The earliest writers who describe the mixture of solid colours with oil for the purposes of painting are Eraclius, Theophilus, Peter de St Audemar, and some 13th and 14th century sources. Though their precise chronology cannot be determined, oil painting seems to have been practiced in a limited manner at the end of the 12th century.6 Copies of Eraclius, *De Coloribus et Artibus Romanorum*, and Theophilus written in the 13th century, mention oil for painting (linseed is understood). Colors mixed with oil are used for painting on stone. The preparation of wood for painting is described. Briefly, the instructions are to cover it with leather or parchment and use oil or an oil varnish.7

Theophilus, in *Diversarum Artium Schedula*, compiled at the close of the 12th century, describes the preparation of linseed oil, grinding with vermilion, to paint doors or panels.8 Others colors may be used on such objects as may be dried in the sun.

Perter de St. Audemar was a Frenchman and an ecclesiastic, a contemporary of Theophilus. He describes various colours and the medium with which they are to be mixed. White lead mixed with wine for illumination on parchment, oil for painting on wood and on walls. The rule of Theophilus when wood is to be painted, oil is recommended for all colours, because movable panels could be dried in the sun. 9

In England, large supplies of oil appear early in the Westminster and Ely records for painting. It was used in varnishes, as a mordant for gilding for a certain kind of glass painting, and in painting walls, columns, stone and wood. 10

14th Century Oil Painting

Documents referring to this period are the *Trattoato della Pittura* of Cennini, a Venetian Ms in the British Museum and the Byzantine manuscript mentioned previously. The Byzantine treatise was originally composed by Dionysius, a Greek monk of the 9th or 11th century. Others think 16th century or earlier, with 16th century additions to antique recipes.

Cennini studied with Agnolo Gaddi (d 1387) who learned from Giotto. Cennini may have completed his work in 1437, or even earlier. The fourth part of his book relates to oil painting. He describes adding a small quantity of lime to the oil. Drying in a warm climate is simpler than in a damp climate. The oil is thickened by long exposure to the sun. This made it glossy, but thick, unfit for finer work.11

Cennini makes no mention of Van Eyck's improvements. The method was used on the decorative parts of the work, draperies, gilding and foils. However, the faces and hands of 14th century Italian work were always in tempera.12

The 15th century copy of a Venetian manuscript describes formulae similar to Cennini's. It has receipts for water colours for painting on cloth, and on glass. In oil painting verdigris was used as a dryer as in 16th and 17 th century in Italy and Spain. The direction to "dry in the shade" is an indication that a dryer is used. It relates to the cover or door of a diptych, the picture within being executed in tempera.13

Hubert and John Van Eyck

Review of some 14th century oils

Crassum oleum of Eraclius was thick. Peseri of Greeks was also thick and could only be applied with the hand or a sponge as directed by Theophilus. It was used as a varnish only. Nut oil of Aetius was similar to these others. Sesamine oil, and olive oil were similarly thick.

Colours ground in such vehides were almost unavoidably spread in flat tints only.14 Armorial bearings, patterns works of mechanical decoraton. Faces, hands undraped figures would be executed in tempera.15 The oil used at this early period was itself a varnish. Dryers were added when necessary.

About the year 1400 the practice of oil painting however troublesome had been confirmed by the habit of at least two centuries. Hence the Van Eycks and the painters of their school had to overcome the stigma of oil painting as fit only for mechanical decorations. They sought to raise the wonder of the beholder by surpassing the finish of tempera with the very material that had long been considered intractable, by imitating nature.

Vasari's Account of Oil Painting Introduced by Van Eyck

Authors who overlooked the previous imperfect attempts at oil painting eulogised the Flemish artists, and ascribed the 'invention of oils' used in painting to the Van Eycks. Hubert was born in 1366, died in 1426. John was born in 1390-5 and died in 1445. All writers agree that the improved oil painting was first introduced about the year 1410.16 Hubert was the inventor, John carried it forward due to his skill. John introduced the improved method to Italy on a stay in Venice in 1455, communicating his secret to a painter, Antonello da Messina, who carried it to Florence. 17

The artists who founded the Venetian school had taken the system of oil painting into their own hands, and modified it considerably. The same degree of change had taken place in Florence and in Milan.

Vasari describes how Giovanni of Bruges (John Van Eyck) varnished his panel and set it in the sun to dry. It split open at the joinings, and he began to devise a means for preparing a varnish which would dry in the shade. He found that linseed oil and nut oil, were more drying than all the rest. These he boiled and made the varnish he desired. He mixed the colours with these oils giving them a gloss, and allowed blending, better than with tempera.

Giovanni began to fill the neighboring provinces with many works, and his fame spread. But he would not teach his secret. When he became old, he imparted it to Roger of Bruges, his scholar. Some Florentines saw his work, and Antonello of Messina, heard of a picture and went to Bruges and cultivated the friendship of Giovanni. He did not leave Bruges until he had learned the process, and returned to Italy to communicate the process in Venice (Florence 1455 - 60). Here Messina died at 49.18

Van Eyck's inventions

Cennini mentions "vernice liquida" as the varnish for tempera pictures. This refers to amber at the time of the Greeks. Amber attracts small light objects. Sandarac is a resin from a shrub like juniper, found on the Barbary Coast and other parts of the East. It is often confounded with amber. Sandarac is reddish. Copal is an Oriental or African varnish similar to amber.

To make Vernice liquida

Take one lb. of sandarac resin and four lb. of linseed oil, place oil on the fire to boil. Take another vessel for the resin and add 3 oz of oil, little by little, stir continually and let the oil continue to boil until the whole is transferred to the vessel containing the varnish.

To make a superior Vernice liquida

Take 3 lb of linseed oil and 1 lb of yellow amber and 6 oz of pulverised brick
Make a furnace with two orifices below each having a bellows and charcoal fire.
Put your amber in a glazed vessel with oil to cover then blow with the bellows until the amber dissolves. Have a wooden trencher wrapped with wet cloth so if the varnish should catch fire cover the vessel with the trencher. 19

Concrete turpentine

Take fir resin and place it in a copper vessel and set it on the fire. 20

This refers to fixed oil varnishes. Essential oil varnished were unknown till the close of the 15th century. 21

The old Byzantine varnishes are extremely dark. The lighter style of colouring introduced by Giotto may have been intended by him to counteract the effects of this varnish. The greenish tone of the flesh of the Florentine and Sienese schools was neutralized by the red sandarac varnish.22 Amber and copal varnishes are extremely dark in colour, and dry slowly but are very durable.

Van Eyck's varnish was the customary sandarac oil varnish made with care, but still defective. To make a varnish that would dry in the shade, he found linseed and nut oil both good, when bleached in the sun. A dryer was used, and a firm resin, amber or copal in the oil. The drying varnish was mixed with the colours.23

The colours were first ground in oils alone. Then the olio-resinous varnish was added to each tin. Hubert may have used a darker medium. Gradually the colour improved and the texture of the mixture became more workable. Communication with Rene of Anjou who illuminated missals in egg tempera, and who corresponded with John may have assisted the process.24

So we may assume the Van Eyck's vehicle was either linseed or nut oil, a durable resinous ingredient. It was drying, and intended to be mixed with the colour, nearly colourless and of a consistence which allowed of the most delicate execution.25

The materials may have differed little if at all from those which had been long familiar. The chief novelty is a general excellence unknown before. Hubert's invention allowed John's gift for seeing nature to be expressed.

The Inheritors of the Van Eycks

The Flemish inheritors that come nearest in technical excellence are Roger of Bruges and Memling. All their colours are well ground in oil. Three drops of varnish are added. Their resinous materials are sandarac, mastic, and "gloriat" or turpentine. Amber has a tendency to flow and is used in small quantities for particular purposes.26 Amber recipes follow. Copal and amber have a tendency to yellow, and are therefore used sparingly in the lights.

Amber varnish of Venice was used for lutes and musical instruments. Clarified with pulverised brick, and kept in Italy all vendors of colours. This drying varnish, thinned with clear oil was used by Orazio Gentileschi and others, sparingly mixed with the colours already ground in oil, causing them to flow more or less, and giving them a remarkable gloss. It was also used to "oil out" a dry surface, thereby greatly promoting the drying of the superadded colours and giving them the same qualities.

Gentileschi, when very aged, was invited to the court of Charles I and died in England. His daughter, Artemisia Gentileschi, was also much employed in England. The practice of Gentileschi, considered independently of his style, thus corresponded in a great degree with the early Flemish tradition. But it is not necessary to suppose that this amber varnish, however carefully prepared, was the only material of the kind employed even in the primitive method. That method was by degrees variously modified in various schools.

The Italians of the 16th century more commonly used the lighter oil varnish prepared from mastic, and some of the later Flemish painters adopted a similar practice. The traditional amber varnish, when prepared or mixed with drying oils, as in the practice of Gentileschi, was used as a dryer, and this drying quality corrects the tendency to flow. The mastic oil-varnish, to which purified turpentine was sometimes added, was used by the later Flemish painters, was introduced by them into England in the 17th century. The need of using the oleo-resinous mediums in England and Holland's damp climates has been recognized.

To make Vandyck's drying oil take 2 oz of white lead, and a pint of nut oil, set the oil upon the fire in a large earthen vessel, put in the lead by degrees, as the oil simmers very slowly over the fire till the whole is dissolved. The oil was then clarified by straining and by repose. Use within a month.

To make Vancyck's mastic varnish take 1 lb of gum mastic, powder it and set it in an earthen vessel with 2 lb of spirit of turpentine. Set this in a sand heat, or any other heat that is less than will make the spirit boil, let it remain till the gum is dissolved. Take it from the fire and let it stand till the contents are cold. The varnish is to be poured out, and separated from any little foulness it may contain. Make a quantity and keep in stoppered bottle exposed to heat of the sun. this will make it clear. To use Take 1 lb of this varnish and half a pint of the drying oil, shake them well together put them in a bottle to simmer on the fire for a quarter of an hour.27

Vandyck kept all his colours dry, except white, which was ground with nut oil, and kept under water. His colours were tempered as he used them with the oil and varnish. The dryer most commonly used in the Flemish school of the 15th century was white copperas. It was still as common in the 17th century according to the Mayerne Ms. Colours which do not (of themselves) dry will dry by adding to them verdigris, white copperas, or crystalline glass.28 White lead is the most ancient of the recorded dryers, (Eraclius 1400).

Essential Oils

White copperas is probably one of the improvements used by Van Eyck. Others may have been naphtha, the essential oil of turpentine, and spike oil. They were not used by the partial oil painters, but seem to have been a part of the development of refined oil painting, to dilute thick oleo-resinous compositions and rapidly evaporate.29

The comparative durability of resinous substances when dissolved in essential oils is scarcely a criterion of their solidity when dissolved in a fixed oil. They then become far more firm \ than in oil alone, and carry that firmness to the pigments with which they are mixed.

The Preparation of Oils

The perfection of varnishes depends on the preparation of the oils in which the resins are dissolved. The best oil for varnish or for an oleo-resinous vehicle is also the best for using as a painting medium. On this account there is no difference between the Flemish and the Italian practice.30

The drying oils mentioned in the records of the best periods of painting are linseed, hemp seed, walnut and poppy oils. Hemp seed appears rarely, and poppy appears latest. Linseed was in use centuries before the time of van Eyck. The best painters have left nothing undone to render oils as colourless as possible. Exposure to

the sun precipitates or evaporates the mucilage often contained in fresh oil, washing, filtering, mechanically and chemically purifying. 31 Detailed recipes are given for various vessels and churns, the addition of white sand and salt, burnt alum, calcined borax, chalk, lime, magnesia, calcined bones and pumice stone.32

The oils may be made more drying by the addition of various metallic compounds, including white lead, litharge, white copperas, small shot or lead filings. Umber pigment is also quite drying.

Grounds

Perhaps the only technical process which has survived unchanged from remote antiquity is that of preparing wood panels for painting. The layer of chalk and size found under the colours of the Egyptian mummy paintings is the same as that employed by the painters of the middle ages and often used at the present day. This is of washed chalk (whitening) or plaster of Paris prepared in hide glue or parchment size.

Van Eyck painted on wood only, with one recorded instance of his having used cloth. Rubens used wood for small works. So Cennini's directions may be considered applicable to all contemporary schools.33 The Flemish painters used oak, the Italians used white poplar. For large works the wood was glued with battens and a glue of cheese, ground with quicklime, as described by Theophilus.34

This ground was safe in dry climates, but not in damp countries, or inside the damp walls of a church. So a transparent warm tint (flesh coloured) in oil medium was used by oil painters after drawing in pencil or black chalk on the white medium. An incomplete St Barbara by Van Eyck can be seen in this state.

The Painting System

The Italians at first used the Flemish methods, but gradually modified the process. The perfection of Van Eyck's technical system is apparent in the works of Rubens, notwithstanding the difference in style.35 The shadows were painted in with a rich transparent brown. Later artists drew in the composition with a diluted brown outline colour.36 Or the design may have been drawn in with a dry point . The transparent brown shadows were added throughout the work, and the half tints indicated. Examples of pictures in this state are common. The habits of the first oil painters were influenced by the practice of tempera.37 They did not load the colour, but used it thin and sparingly, in order that the tints might be clear and glowing.

When the habit of making cartoons for oil pictures was nearly obsolete in Italy, it was still considered indispensable in Flanders and Holland. There Lucas van Leyden and others made finished drawings as preparations for pictures. It thus appears that the method proposed by the inventors of oil painting, of preserving light within the colours, involved a certain order of processes.

1. the outline should be completed on the panel before the painting was begun
2. avoid loading opaque colours. This was not essential with transparent colours

Implements

The painter's palette was not in use in the beginning of the fifteenth century. Cennini does not mention it. It may still be supposed that a tablet was at hand on which the colours were tried. The tints were placed in small cups. The ancients used shells and the Byzantines continued the practice.38

For a considerable period after improved oil painting was introduced colours were kept in a dry state, and mixed immediately before they were used. They were ground, in a pure drying oil, and a few drops of varnish were added to each tint, according to the nature of the colour. The earliest notices of oil colours being kept in bladders occur in English treatises, perhaps by itinerant portrait painters.

The early painters ground or mixed their colours in vehicles of different drying tendencies according to the nature of the pigment. These methods differ from those of the Italian, and later Flemish masters. The white panel and thin painting, was replaced by the introduction of dusky grounds, and solid painting. This is needed if painting on cloth as the Venetian oil painters soon became influenced.39

The Venetians introduced the idea of painting on cloth. They spread a thin coat of white ground on it first. Then solid painting with the colours loaded on.40

Preparation of Colours

From the art of illumination a variety of colours were known. The careful preparation of pigments was carried into oil painting. There were four classes of pigments. There were those which required to be washed and ground, those which were to be washed only, those which were to be ground only and those which required neither. The liquid vegetable extracts, were neither washed nor ground. Ivory and blue blacks, and some other colours were ground only. White lead was washed and ground. Minium, massicot, bice, ultramarine, smalt and some others were washed only.

Painters of the 14th century tempered their tints in shells, and often added a few drops of naphtha, spike oil or well rectified spirit of turpentine on the palette. This causes the colour to sink in and thus not to fade, even in a damp climate. Or linseed or nut oil mixed with a small amount of spike oil can be used.41 This results in a dull surface, remedied by a final varnish.

The colours used in F landers and Holland are

White

white lead - ground in oil, kept in water,

calcined hartshorn (can be safely mixed with orpiment)

Yellow

ochre - light and brown
Mars yellow (rust of iron)
masicot (light yellow) yellow oxide of lead or lead tin yellow 42
yellow lake, chalk impregnated with vegetable dyes, durable in lackers
graines d'Avignon, weld, broom, curcuma, saffron, aloes quercitron bark,
two orpiments, King's yellow, orange orpiment43
gamboge

Red

vermilion - carnation tints of flesh
minium
lake, madder,
face brown red, burning ochers,
Indian red, caput mortuum
sinopia,44
kermes, grains45
brazil wood 46

Blue

English, German and Haarlem ashes, from silver, carbonates of copper, or smalt
smalts
blue lakes
indigo, may be rendered safe by steeping in vinegar and exposing to the sun
for 2 - 3 days, pour off vinegar and grind the dried paste in oil
ultramarine
azure - German blue ore of copper 47

Green

Terra verde (weak)
verdigris (crude) deliquescent in damp atmosphere, need to be "locked up" with
turpentine resin, Cyprus balsam or resin dissolved in an essential oil
green bice (not durable)
compounds with fugitive yellow lakes, massicot, and bice
bladder green, sap green, juice of berries, cervispina, buckthorn

Browns

terra verde, umber
Cologne earth
asphaltum

Blacks

ivory and bone black (lampblack condemned)
black chalk ground in oil
vine charcoal black (blue black)
coal - unburnt (brown black)48

Turpentine

Turpentine resin is obtained from the silver fir on the Italian side of the Tyrolese Alps. It is clear and colourless which is not the case with Venetian turpentine (produced from the larch) which may be purified and seems to have been used by the Flemish painters. When mixed by heat with essential oil of turpentine, in equal quantities. This varnish is spread on verdigris, face tints and all other colours. It dries in three hours and can then be painted upon.49

In the Netherlands the painters were in the habit of increasing the body of this varnish by the addition of mastic, turpentine, spirit of turpentine and pulverised mastic.50

Summary - The Early Flemish Masters

Due to the damp climate, in the original process, theypreferred a white non-absorbant ground, usually on wood.
A careful drawing was completed.
A general pale flesh tint, or grey was sometimes passed over the ground, to assist the middle tints of the picture.
The shadows were inserted first, unmixed with the opaque colours.
The design was dead-colourd from a finished sketch
The colours were kept thin to show the white ground through the colours.

After the time of Rubens

Later painters instead of the original white ground employed a dusky priming, serving as a middle tint for the shadows rather than the lights. It was composed of white lead, black, red ochre and a little umber.

Amber is still used as a vehicle for colours in the time of Rubens and Rembrandt

Oleo-resinous vehicles , diluted with an essential oil was compatible with the sharpest details. Its drying tendency was sometimes assisted by the addition of metallic oxides.

When a thinner vehicle was used, the essential oil varnish of the Italians was adopted, a liquid resin or balsam dissolved in spirit of turpentine or other volatile oil. This was too thin for a northern climate so mastic was added until this superseded the original fir or larch resin.

Rubens and his school still used the principles of the early Flemish masters and carried them to a higher perfection. He prepared a coloured sketch. He made innumerable drawings and studies. He inserted the shadows on the light ground at

once and avoided alterations. The shadows were so thinly painted they remained transparent.
Rubens did not blend the colours much with the tint next to it. So the method of Rembrandt was not to mix the added pigment with what was underneath it.
Colours were laid on without mixing.

The vehicle used was Venice turpentine, amber (replaced with Copal) was never laid aside, and had returned to the North from Italy in the hands of the Gentileschi.51

In the Italian System

Pictures were begun in black and white, or a warm brown. They painted and repainted the shadows sometimes to a uniform blackness eg Correggio.

In all schools, to guard against the yellowing of the vehicle, the early painters were familiar with the bleaching action of the sun. In the North, wooden panels could be dried in the sun, to bleach and remove any superficial oil. Sometimes the panels split. This danger provided another motive for painting on cloth. Newly painted pictures would be exposed to the Italian sun for 15 minutes a day, while older paintings had to be protected from such light.

Correggio and Oil Painting (The teacher of Orazio Gentileschi)

Correggio painted in tempera on cloth. Quick drying tempera can be kept moist by wetting the back of the picture. It is speculated that these were preparations for oil pictures. At this time many Florentines avoided the use of oils.

Correggio began painting in oils with white and black only. At the second sitting he scumbled a light flesh colour over the black and white, then white, umber, minium cinnabar, black, the shadows thin of colour. Then the flesh with ultramarine and carmine and pass white over it very very thin with oil. Or he would paint the carnation too red, and scumble over with white and black.52 Or he would use white, black, Indian red and raw umber. 53

The earliest oil painters, the Flemish including Rubens began with the shadows. Correggio repeats this on a more transparent scale. In short the last operation of the Italian practice is, the only operation of the Flemish practice.

The first stage of the Italian process, was reduced to a system by Leonardo and perfected and sometimes abused by Correggio and the Venetians. The skillful use of a few simple colours is stressed, black, white and red under painting. Scumbling and glazing in local colours came later. The flesh is solidly painted on a light scale in a purplish tone.

The whole work has been painted either with linseed oil alone, or with linseed oil diluted with an essential oil. Correggio probably used naptha, Leonardo spike oil, and others spirit of turpentine. The picture so far is free of a glossy surface. This dead coloured work would be left in this stage till perfectly dry. 54

While the Flemish masters tried to show the light ground (on which the design was carefully drawn and shaded) through the colour, the Italians in their final operation worked in the same way with a similar vehicle allowing the bright under-painting to tell through the thin substance of the toning colours.

The clean surface is oiled out with the same thick vehicle with which the tints are to be applied. Rubens says -

1. insert your shadows, then half tints. The whole surface is toned and coloured,
2. the shadows gone over again and the lights revised and tinted .
3. the same operation with transparent and semi-transparent colours, always applied with the same vehicle, until the depth and warmth of nature is approached.
4. the lights of opaque pigments ,

Draperies should be treated in the same way, shadows with transparent colours and an abundance of vehicle; the lights toned with either transparent or semi transparent colour

Fugitive colours require to be locked in with copious vehicle, eg blues and greens, especially verdigris, yellow lake.

Correggio would probably prefer the finest and firmest of the ancient oil varnishes, the amber varnish, as used my makers of musical instruments. Gentileschi tells us that in his time all the colour vendors in Italy sold the amber varnish used by the varnishers of lutes.55 5150 words

Bibliography

Anfam, David A et al Techniques of the Great Masters of Art, Chartwell Books, Inc. Seacaucus, NJ 1985

Cennini, Cennino d'Andrea," Il Libro dell' Arte" The Craftsmans's Handbook, Translated by Daniel V. Thompson, Jr. Dover Publications Inc New York, 1960, (1933)

Clarke, Mark The Art of All Colours, Mediaeval Recipe Books for Painters and Illuminators, Archetype Publications, 2001

Delamare, Francois and Guineau, Bernard. Colors, The Story of Dyes and Pigments, Harry N. Abrams, Inc., Publishers, NY 2000

Eastlake, Sir Charles Lock, Methods & Materials of Painting of the Great Schools & Masters, (formerly Materials for a History of Oil Painting) Dover Publications, Inc,
New York 1960 (1847) Volumes I and II

Losos, Ludvik, Painting Techniques, Octopus, London, 1987

Megan ni Laine de Belle Rive, A Palette of Period Pigments, The Compleat Anachronist # 43, 1989

Merrifield, Mrs. Mary P. Medieval and Renaissance Treatises on the Arts of Painting, Dover Publications, Inc New York,1967

Seymour, Pip, The Artist's Handbook, Capella, Toronto ISBN 1-84193-199-3

Smith, Alistair, Early Netherlandish and German Paintings, The National Gallery London, 1985

Theophilus, On Divers Arts, The Foremost Medieval Treatise on Painting, Glassmaking and Metalwork. Trans. by John G. Hawthorne and Cyril Stanley Smith, Dover Publications, New York 1963, 1979

Thompson, Daniel V. The Materials and Techniques of Medieval Painting, Dover Publications, Inc, New York, 1956

Vasari, Giorgio, Vasari on Technique, translated by Louisa S. Maclehose, Dover Publications Inc, New York, 1960 (1907)

Vigue, Jordi, Great Women Masters of Art, Watson-Guptill Publications/New York, 2002

Vreeland, Susan The Passion of Artemisia, a Novel, Viking, 2002

Wieck, Roger S., Voelkle, William M., Hearne, K. Michelle, The Hours of Henry VIII, A Renaissance Masterpiece by Jean Poyet, George Braziller Publisher, New York 2000