

THEMATIC UNIT N°9:

PAINTING TECHNIQUES: GENERALITIES AND CLASIFICATION.

9.1. DEFINITION AND CLASSIFICATION CRITERIA.

9.2. A BRIEF HISTORY.

9.3. TRADITIONAL TECHNIQUES (lean, fat, mixed historical).

9.3.1. Lean.

9.3.1.1. Temple and its varieties.

9.3.1.2. Watercolor.

9.3.1.3. Gouache.

9.3.1.4. Cake.

9.3.1.5. Fresco

9.3.2. Fats.

9.3.2.1. Oil and its varieties.

9.3.2.3. T. Mixed.

9.3.2.3. Painting with wax, encaustic and varieties.

9.4. ACTUAL AND EXPERIMENTAL TECHNIQUES.

9.4.1. New coverings.

9.4.2. New supports.

9.5. BIBLIOGRAPHY AND WEB LINKS.

9.1. DEFINITION AND CLASSIFICATION CRITERIA.

Definition of Painting Procedure.

Joining of the elements constituting the binder or adhesive and pigments.

Definition of Painting Technique.

How to implement the painting procedure.

Thus we agree with the definition of Antoni i Palet as one of the authors has shown less ambiguous to define both the painting procedure as the painting technique.

"The procedure is that method used in the art of painting that refers only to the binder or fixative of the pigment used to paint and not the operational form of carrying out the painting"¹

This author also talks about the concept of pictorial technique this way.

"Are reserved the words painting techniques to describe different possible ways to paint that each procedure may have and support"²

As for classification, all authors agree on the concept of lean or fat binder as the first level of differentiation between painting procedures, so that's where we too will start from.

We shall consider those procedures have not a binder and that the support and the pigment form the body of the work of art, in which case we will name it depending on the medium or any other feature that stood out, as the pastel, whose small quantity of binder not have the function of fixing to the support, but rather to maintain the pigment bound in stick form, so that we can grasp to apply. Later in the T.U. 11 will be discussed more fully in the Pastel technique.

9.2. A BRIEF HISTORY.

Although the archaeological springs and written documents are the clearest indicator of the origin and historical data that lead us to certain areas of the world. It is difficult to determine who was the first to discover and use these or those materials and procedures. Precisely, because despite the distances, even separated by oceans, people have developed spontaneously from the earth materials offered, procedures and

¹ PALET I CASAS, Antoni , *Tratado de pintura: color, pigmentos y ensayo*. P-55. Edicions de la Universitat de Barcelona, Barcelona 2002.

² Ibi diem.

techniques that allowed them to peer express themselves artistically, that is, a so authentic, personal and lasting, his contemporary.

It is particularly useful for the understanding of this process the display somehow all the procedures, their evolution and the geographical area in which they are located and develop, we will consult the historians Hugh Honour and John Fleming, in their “*A World History of Art*”³, which includes a series of chronological tables which represent the history of art from its origins to the present day.

Prehistory.

We will start from the origins of mankind in particular those pictorial manifestations that have been preserved to our days.

The different types of rock art known (mural painting in caves), are mainly concentrated in certain regions of the Pyrenees belonging to France and Spain and the Mediterranean coast. Finding samples of inferior quality in Portugal, North Africa, Italy and Eastern Europe. All of them agree on the procedures used. The pigments used either separately or mixed, depending on the period and geographical area were used were ocher clay, red iron oxide and black manganese dioxide which agglutinated with animal fats (including waxes) and resins. It is in these binders mentioned is where we find the germ of the first classification that divides the lean and fat binders. Recall that resinous or gummy exudates of certain trees existing at that time are soluble in water. And perhaps also from there is where we should start our historical evolution. Focus on the remains preserved and not on the hypothesis that, to be informed and reasoned argument, not preserved samples or written documents, they are still speculation.

The Tempera.

The tempera painting technique is the oldest known. It is a painting technique that involves dissolving in water and tempering or thicken with egg, casein, gum or a solution of glycerine natural pigments so they could be applied on the walls, covered with a layer of lying "dry" gypsum. Depending on the binder that we use to thicken was called casein tempera, egg tempera, etc.

³ HONOUR, Hugh. FLEMING, John. *A World History of Art (7th edition)*. Laurence King Publishing. London. August 2005.

The wall paintings of ancient Egypt and Babylon, and the Mycenaean period in Greece, are probably made in tempera with a binder of egg yolk, which in some cases adding a little vinegar. Subsequently the use of the temple spread throughout Europe and reached its culmination in Italy. Florentine painters of the thirteenth and fourteenth centuries, such as Giotto, Cimabue and his contemporaries used this technique on a preparation of white plaster. The Italian Renaissance painters grind the pigments by hand and once they got the powder they mixed it with the binder.

Never has vanished completely the use of traditional egg tempera, in the XIX century was refreshed by a number of artists from Prerrafaelistas and Symbolist currents, among which we mention:

- The Englishman Samuel Palmer (1805-1881).
- The Austrian Gustav Klimt (1862-1918).
- The Swiss German training Arnold Brocklin (1827-1901).
- The French Gustave Moreau (1826-1898).
- The Belgian Jean Delville (1867-1953).

In the United States, a number of artists of the twentieth century retake the egg tempera sold in tube. Special mention American painter Andrew Wyeth (1917-2009) and other followers of the new American school in which we find authors such as: Thomas Hart Benton (1889-1975), Reginald Marsh (1898-1954), Ben Shahn (1898 - 1969), Peter Hudson (1904-1984), Paul Cadmus (1904-1999), Jared French (1905-1988), George Tooker (1920-2011), Michael Bergt (1956) and Fred Wessel. English as Edward Wadsworth (1889-1949), Bernard Cohen (1933) and Anthony Williams (1967).

Today has been a resurgence of artists who have taken up the procedure with the classic recipe and have jumped into the plastic creation from totally contemporary aesthetic approaches. Today, these paintings are getting into fashion but are already made and all you have to do is add water or other binder, usually casein. Tempera paints are opaque and matte color and remain unchanged for a long time. In Italy in the 80's with the Italian Transvanguard also produced a review of specific aspects of the trade of painter, an issue that is reflected in the work of artists like Francesco Clemente (1952). In Spain in those exercises of revisiting aesthetics and techniques from the past we highlight the figure of Guillermo Pérez Villalta (1948).

Parietal Roman Painting.

The procedures used in this painting should be the encaustic, tempera and fresco. Although it is known that the Romans developed the panel painting, the pictorial remains known most important are mural type, protected with a fresh coat of wax that fanned the colors and known as parietal painting.

There is no agreement on its development, whether or not carrying a binder, which clearly distinguish between a temple and a fresco, it does seem to have found some wax, which fails to fully clarify whether it was a encaustic wax procedure included in the binder or if it is subsequently applied as a protective film over a tempera or fresco. Although some authors as Augusti Selium in their research reached the following conclusions:

- 1. In the mass of the colors of all Pompeian paintings wax appears.*
- 2. All colors are encompassed in a crystalline mass of calcium carbonate, which presupposes the use of lime as a binder.*
- 3. ...According Therefore, Pompeian paintings are formed by a lime soap solution containing in suspension the color, and the wax that was added as a protective element and waterproofing. But for this solution to give good results, had to be applied on a suitable plaster. The base layer of the paintings, white, clear, smooth and easily removable, should consist of the same materials found in the paint layer, with the addition of Crete instead of colour ...*

Anyway, from Vitruvius, indicating that the painting had to be made to fresco "*colores udo tectorio inducti*"⁴ to the latest research⁵ they have gathered all analyzes and theories that have been made to these Pompeian paintings. Still cannot be said anything conclusive. Due to the disparate conclusions to be reached starting from the same data.

It seems more accurate to think that the Romans knew these three procedures and dominated to the point that tastes and preferences of the artist and the client and the characteristics of what is going to be painted was what decanted final decision by one of the three

procedures and even mixed procedures thereof.

⁴ VITRUBIO (De architectura, Libri VII, iii)

⁵ MILLÁN SAÑUDO, Eduardo Jesús. *La Técnica Parietal Romana. Análisis del Proceso Técnico Mural Romano en el Área Vesubiana*. TESIS DOCTORAL. Universidad De Sevilla. 2011.

Encaustic.

The use of beeswax as a binder for paint is one of the oldest known, was employed by the Egyptians, Greeks and Romans for the realization of his paintings, as is recorded in the writings of classical authors (Pliny, Vitruvius).

Re-emerged in the seventeenth century, one of the greatest exponents of this revival the Spanish Jesuit Abbé exiled in Italy Requeno Vincente, who rebuilt the classical method based solely on the interpretation of classical texts. The Count de Caylus, a contemporary of Requeno, studied and promoted the development of this technique on the basis of modern chemistry of his time.

Garcia de la Huerta writes a treaty based on the work of Requeno, broad and rich with lots of data, while specific improvements proposed for it by exposing the methods that had been subjected to experimentation.

Today beeswax is not the only one used as a binder for the preparation of painting for artistic purposes, but not so widespread, it has been well received by contemporary relevant artists and good number of young artists.

Fresco

Fresco is known in Greece in the late Minoan period the houses were plastered with lime end as the only component, and that even the simplest is profusely decorated with a fresco with a high degree of technical and artistic perfection what is considered the first culture that used this procedure on wall support. They used lime mortar and plaster painted. And from S.V B.C. encaustic was used both as the pure fresco with drawing engraved on the mortar.

In Rome, although no concrete was the only procedure used to paint the walls of Pompeii, it is clear that in Vitruvius "*De Architectura Libri VII*"⁶ makes it clear that he knows the fresco and used at the time, through a clear description of methodology. And it is also used profusely to paint the walls and roofs of the catacombs, and although technically not represent any progress; it is not so aesthetic level, which suggests a new way of representing the human body towards what will be the Romanesque.

In the Romanesque procedures were generally followed were the tempera and fresco for paintings and mural, tempera and gouache on

⁶ VITRUBIO (De architectura, Libri VII)

panel painting and gouache or watercolor (on applications and tables with gold applications) for codices' illuminations.

Gothic painting begins to develop after architecture producing slow progress in painting techniques in the treatment of the supports (allowing greater dissemination of a portable art), pigments and binders. Follows the tradition of both Roman and Gothic for painting walls to Fresco. No major technical advances with a single name, Giotto.

Continue with the renaissance that continues without major procedural or technical innovations, except that if the appearance at this time of oil procedure. It was a time of great painters. In the work of *La Gioconda* develop new techniques used by Leonardo, *sfumato* and *chiaroscuro*. Michelangelo proved the technical perfection reached with the frescoes of the Sistine Chapel.

Watercolour.

Although several authors locate the beginning of the watercolor painting at the time that the Chinese invented paper, that is, shortly after the 100 B.C. as we specified at the beginning of this chapter. The procedure definition relates only to the pigment and the binder used, apart from both the holder and how to apply it. And so we conclude that is also in ancient Egypt where we find the first records of the use of watercolor, particularly for the illustrations of the Egyptian papyri. The binder for this procedure is performed with pigments diluted in water, with binders such as gum arabic or honey.

The early oriental ink drawings are actually a form of monochrome watercolor. We can say that the art in watercolor as conceived in our day began with the invention of paper in China in the above date and it seems that its evolution and development is linked to the appearance of paper provided by the trade or manufacture. Whereas, in the twelfth century the Arabs introduced papermaking technology in Spain and spread to Italy decades later. In medieval Europe, were used in water-soluble pigments bonded with egg-derived densifier for illuminated manuscripts.

Some of the oldest paper manufacturers include Fabriano (Italy), opened in 1276, and Arches (in France), opened in 1492. And this is the path it has followed in its evolution.

Oil.

It was once thought that oil painting was invented by the Flemish painter Jan van Eyck in the early fifteenth century. We mentioned above that was

in the Renaissance when it appeared the oil procedure. Even though, Van Eyck investigated and worked with this technique in the conventional linear of tempera, making a detailed drawing at a table covered with plaster and applying successive layers of transparent oil glazes.

The Venetians advanced painting on canvas. Developed a freer style based on a underlying painting, monochrome and rough, done with tempera and adding oily glazes, also called, historical mixed technique and largely developed at the T.U. concerned. Dutch painters like Rembrandt and Frans Hals and the Spanish painter Diego Velazquez did tests with the application of fillings.

Advances in chemistry provided new and bright pigments in the nineteenth century. The invention of collapsible tubes, which came to replace ram gut bags where pigments were kept until then, allowed the artists to work outdoors copying directly from nature. Chemical additives, which kept fresh paint, made it possible to make greater use of fillings. The underlying paint virtually disappeared. The French Impressionists applied directly onto the canvas, a lot of small touches of bright colors. There are no more technical or procedural innovations to the development of non-figurative painting in the twentieth century, artists have experimented with new techniques, increasing the textures of sand, marble dust, ashes or plaster, staining the canvas and working with commercial paints and sprays; also have combined painting with photographs and printed material to form collages. The versatility of oil painting has made it the best means of expression for artists of the twentieth century, but since the 1960's many artists who feel that the acrylic paint is best suited to their needs.

9.3. TRADITIONAL TECHNIQUES (lean, fat, mixed historical).

9.3.1. Lean or water procedures.

Lean procedures are those that result from the use of lean binders. That is, these binders that can dissolve or break in the water.

9.3.1.1. Tempera and its varieties.

As main lean procedures we have:

Techniques of lean egg tempera paint.

In the case of egg tempera lean, the binder is egg yolk diluted with water in the proportions: a volume of the first by two of the second. There are as specified later in the T.U. 13 large number of variants of this tempera in

terms of proportions we want to add linseed oil or varnish Dammar, and always bearing in mind that this procedure will go back fatty as we increase the proportions of these.

Techniques glue tempera paint.

In the aforementioned T.U. find indications of the proportions which will be and how to achieve this binder (water-glue) from the rabbit glue with water. Requirement will be adding a few drops of linseed oil to give elasticity to the emulsion, provided the base on which we will paint not rigid.

Techniques of casein tempera paint.

The binder of this tempera will be prepared with casein and water in proportions specified in the T.U. 13. and give us a great strength glue was so long used by carpenters. Depending on the volume of water that can be left more dilute, so it will be lighter for use in both as a binder or primings.

Techniques of tempera paint on synthetic resins (polymers): Polyvinyl and Acrylic.

It is through the chemical process of polymerization that developed two synthetic resins adapted for use in the field of art: the vinyl and acrylic.

In any case, despite the differences, artists use the term acrylic regardless whether the resin it is truly the acrylic acid/acrylic copolymer or, conversely, in the case of polyvinyl acetate (PVA). The acrylic resins are made from emulsion of acrylate or acrylic and methacrylic acids. Acrylics are copolymers that with appropriate additions, becomes a medium water soluble, enabling more dilute pigments with more medium, water or a mixture of both, depending on the finish desired.

9.3.1.2. Watercolor

The binder of the watercolor is a gummy solution based on Arabic Gum, exudation of fruit trees (cherry, almond, apricot, peach, etc..) And especially of an acacia tree in Arabia (hence the name) or Senegal, this is dissolved in water in proportion ½ vol. gum arabic per 1 vol. of water. can add 5.8% or 10% glycerol to give it elasticity. (Glycerin is an alcohol dense, very hygroscopic (water attracting) and is soluble).

9.3.1.3. Gouache.

In the case of gouache the binder is the same and thus, the proportion will vary, the pigment is kneaded with the gummy solution. Thus for the watercolor procedure will mix $\frac{1}{2}$ vol. pigment with 1 vol. gummy solution and the gouache is 1 vol. Pigment by 1 vol. gummy solution. We thus obtain two procedures, precisely because of this difference in proportions, in the amount of pigments offers certain characteristics. This will, in the case of water colors is technically used for glazes and washes, while the gouache will pay more opaque fillings.

9.3.1.4 Pastel.

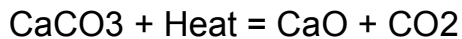
The cake is a lean procedure that hardly if it takes some binder. The most common (binder) is the arabic gum or tragacanth gum and its sole purpose is to hold together the pigment particles together, giving them a bar or similar form so that we can grab with our hands and apply the color.

Suitable supports are paper, cardboard or fabric specially prepared with a degree of roughness which allows the pigment hold good. Fixation of these pigments to the support is made by embedding the same in the paper fiber in the primed surface for purpose. This technique consists in that the pigments "adhere" to the support, so in the pastel procedure is so important to fix the result. Desirable that the supports are fixed to prevent detachment of the pigment powder that is part of the work.

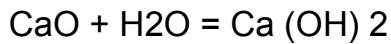
9.3.1.5. Fresco Painting.

Fresco painting means applying adequate mineral pigments, simply dissolved in water, on the wall previously prepared with lime mortar when it is still fresh, hence the name cool. The pigment is applied through glazes and transparencies with soft brushes and the only vehicle that will use the water will be absorbed by the lime to evaporate, creating a thin layer of calcium carbonate that is the league, gathers and protects the pigments that we have. Analogously to the process that occurs in the formation of a stalagmite have a paint which becomes fossil. The binder of this procedure is the wall itself and lime are basically oxides pigments, very lightfast. And all of the material that is used to paint the fresco of mineral will be one of its greatest advantages. You might say that fossil and ecological paint. The materials that we use for the preparation of the wall will be basically lime and sand.

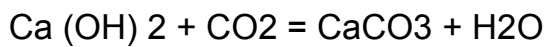
Lime. It is calcium carbonate from the limestone rocks subjected to more than 1000 ° C in wood ovens, where carbonic acid is released to become calcium oxide, lime.



The calcium oxide is what we call quicklime and we off it by immersion in water rafts which boils at 300 ° C and letting it stand for at least a year. Will thus become calcium hydroxide.



Finally, the calcium hydroxide in contact with atmospheric carbon dioxide transforms into calcium carbonate, the same composition of the limestone that were at the beginning.



The drying process is a minimum of six weeks, but continues for about six months.

Sand. From river should be no from sea, and if quartz better. Homogeneous grain size, is good to strain it not to contain impurities. Should be washed to remove salts. It can be used marble sand.

On the wall, ceiling, etc. Will the trowelling with a thickness of 1cm to 0'5cm and allowed to dry slowly and during at most three days. We superimpose another layer on this first one wich will be a mortar rich in lime and fine sand not much thickness, may ultimately add a third layer as a lime plaster. Very important will be to plan that area to be painted because only should be plastered the part we can work this session. It will not be useful next day. The lime in contact with carbon dioxide from the air forms an insoluble film of calcium carbonate in the paint surface protecting and attaching the pigment.

9.3.2. Fatty or oil procedures.

The fatty procedures are those which do not dissolve in water. These will do so in organic or inorganic solvents more or less polar.

9.3.2.1. Oil and its varieties.

Technique of oil painting: layered (glazes) or direct (*alla prima*).

The binder for preparing oil procedure is as follows:

- 120 cc. or ml. of linseed oil.

- 15 cc. or ml. bee wax bleached virgin to be diluted in a water bath up to 135 cc. or ml. Act as stabilizer, increasing the thickness and absorption of oil.
- 360 and 480 cc. or ml. pure linseed oil, added to the above.
- Plus pigment.

The result of this formula will give us the standard procedure for oil painting with the art "*alla prima*". Notwithstanding these procedure, supports a very large variety of mediums, varnishes, etc. It allows the application of the procedure virtually any technique that we propose to run. How might be the application of layers or glazes.

Alkyd painting technique.

The binder of synthetic acrylic or alkyd paint is made of celluloid or flexible nitrocellulose, obtained from a "plasticizer" as camphor. Dissolved in an organic solvent and enriched with resin produces a varnish, producing a synthetic lacquer. If the celluloid is replaced by alkyd resins, will get alkyd paint, this is a hard and fast drying paint, that depending on the proportion of diluent that we add will give us a wealth of technical possibilities.

9.3.2.2. Mixed procedures: emulsions that combine lean and fatty elements.

Temples mixed.

Despite classified the egg temperas, rabbit glue or casein as lean procedures, these, accept in concrete percentages, oils in order to confer elasticity given the mixed procedures character, bequeathing even because of the amount of emulsified oil been known as "fatty", as in the case of the egg tempera when the oil volume exceeds that of the egg. This is how we distinguish a classification of the egg tempera: *Old Tempera, Lean Tempera, Mixed or Semi-fat Tempera and Fat Tempera*.

We can find an example illustrating how we through the addition of fatty elements generally passes from a lean to a fatty procedure, the clear example of the wax with casein in the proportions of 1 Vol. strong casein glue plus 1 Vol. wax and 1 Vol. water. These proportions will confer to this tempera the ductility, elasticity and drying time of fatty procedures.

The wax and glue tempera process is an analogous procedure to that already mentioned in the casein tempera, with the proportions shown below it is converted back to a fatty procedure.

- Vol. rabbit glue.
- Vol. wax.

Perfectly mixed can be painted with any pigment.

9.3.2.3. How to wax or encaustic.

Technique of encaustic wax painting: hot and cold.

Understand the encaustic painting as a hot melt procedure, whose main ingredient is virgin bees wax and a variable portion of dammar resin, both in pure, dissolved with heat and mixed with pigments and dyes. Furthermore, it can be melted with other ingredients (volatile oils or alkali), using the heat during the process and when finishing the work. We are facing a procedure of the oldest known. Encaustic was already used by Egyptians, Greeks and Romans as it is recorded in the writings of classical authors (Pliny, Vitruvius). In fact, bee wax virgin binder is one of the oldest human beings have used in the preparation of his paintings. There are several recipes that have been used over the centuries, but consider starting with this because it gives us a very balanced classical formula that will ensure optimal results.

PAINTING TO ENCAUSTIC MEDIUM.

- 8 parts of resin dammar.
- 3 parts of beeswax.
- Sufficient turpentine to dilute.

Of the various formulas we have discussed. The common denominator of all of them agree that we have approximately twice that of dammar resin than virgin beeswax and the amount of thinner to dissolve these will be about the same as dammar resin. However, there are several formulas that include variations such as dammar resin replaced by copal varnish, or small additions of castor oil to smooth the mixture. This binder is prepared in hot, mainly water bath, and then may be used and still hot or cold. Notice how cool it hardens so it will be useful to have enough rigid spatulas to handle the dough. This procedure is eminently matteric, although according to the technique that we will apply a finish or another.

9.4. ACTUAL AND EXPERIMENTAL TECHNIQUES.

We refer so to the wide variety of procedures as the supports that today offers the industry that come to enrich the repertoire of traditional procedures. In this sense deserves special attention all products derived

from synthetic polymers and we will address in more detail in the thematic unit 16. New painting materials. In any case, given the small duration of course we can not do a thorough and systematic analysis of all the possibilities now offered in this field, so that the thematic unit 16 must serve as initiation and making contact with this reality. You can also access more detailed information on the subject taught in the master with the title New supports, materials and painting poetics (2009), available within the portal OCW Universidad de Murcia.

9.5. BIBLIOGRAPHY AND WEB LINKS.

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