THEMATIC UNIT Nº 5

PREPARATION OF THE SUPPORT AND ITS ADEQUACY TO THE PICTORIAL PROCEDURE.

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5.1. GENERALITIES OF PRIMINGS.

The priming is the process by which a surface is prepared for a subsequent painting. A surface already primed is called pictorial support.

Although more traditional supports were: walls (fresco painting and murals), wooden planks, canvas and parchment or paper. In the present experiments led us to investigate materials of different nature. Whether it was these, old acquaintances that were never given this function, or newly created.

Flexibility, chemistry, texture and absorption are the main characteristics that define each support and will therefore have determined the type of pigment that can be applied and the treatment thereof. This treatment (priming) not only optimizes the fixation of the procedure and adequates the support to the technique we are going to use with this procedure, but also seeks to ensure their permanence in time, as well as providing the chemical conditions help both support and pictorial load, to reach its highest level in terms of inalterability.

5.2. TYPES OF PRIMERS AND ITS ADEQUACIES.

It could be said, generalizing, that there is an inverse proportionality relationship between the elasticity and absorption of a primer. Thus primers may be prepared from highly absorbent and low elasticity, to the slightly absorbent and high elasticity, these surfaces are defined as: Crete, Half crete, Oily and Polymeric.

The oily are subdivided, in turn, into three groups according to their oil content: Low, Medium and High.

Another primer for its special character does not fit within these definitions is called: raw or transparent primer. This does not contain load or dyes and has particular committed as we shall see.

5.2.1. Crete.

They are lean primers which only flexibilizing element is glue. So they are very porous, absorbing liquid elements of the binder easily. Among the liquids that absorbs, we have oils of some procedures. "Released" pigment, appears with much more vibration and intensity.

The lack of plasticizers and emulsifiers makes these surfaces result bright. Suitable for the method of paint by glazes, as the support's light passes through such glazes.

The cretes are very brittle been suitable in the semi-rigid and rigid supports.

5.2.2. Half Crete.

Halfway between the crete primer and the oily. It has the elasticity that crete lacks, allowing to use more kinds of fabric for support without being attached to rigid supports. At the same time leaves the pores surface more open than the oily ones and allowing the diluents easily enter into the support, while maintaining a good brightness.

The flexibilizing used are:

Polymerized oils, boiled oils, boiled oils with metal oxides (cobalt, lead and copper, the most optimal cobalt, as the less dark and more drying), alkyd resins and egg yolk.

Its location midway between lean and fat make them very used, because their characteristics make them versatile to different supports and as to the accepted procedures and techniques.

5.2.3. Oily bases.

In the half crete base had as elasticizing and emulsifier egg yolk and boiled oil, in oily the egg becomes a mere emulsifier and the base is enriched with boiled and polymerized oils and alkyd resins by choosing one of the above or a combination, at most, two of them thus we know that the reactions of oils added to the primer materials are much more stable in simple combinations. The oil percentages are much higher than the average on half crete and in a simple way we could classify them as low, medium and high. In the approximate values those of low content take from 10-15% of boiled or polymerized oil. The medium will have from 15-25% and a high of 25% to 30%.

The oily bases are highly elasticity and can smoothly scroll the canvas. For its limited absorption is most appropriate for semipastas and glazing painting. The surface brightness is low and for emphasizing should replace some of the load (crete or white from Spain(Pipeclay)) for dyes (zinc and titanium dioxide). There is who isolated the bottom layers of glue-water or oil paint before priming. We believe that the glue-water

layers can be useful, but logic tells us that it is good to remove the elasticizer from the primer mass.

5.2.4. Polymeric primers.

These primers are the most flexible and more closed pores, making them unsuitable for fat techniques that require continuous oxygenation. They are completely useful in polymer painting techniques.

5.2.5. Raw or transparent priming.

They are made to retain the characteristics of the support. Its level of absorption is relatively low, lacking the absorbent filler materials that keep the pore open. The oils should not exceed 10% of the total primer as without load elements wich absorb and retain the oil, would damage the fibers.

Glue, as the only corporeal element in contact with the support, lacking fillers and pigments which act as stabilizers of moisture, is not sufficient to protect, by having a degree of hygroscopicity. So these raw supports agree to adding two plasticizers: a closed pore (polymerized oil) and a semi-closed pore (egg yolk).

The characteristics of these limit us to the work in the field of liquations, glazes, semi-pastes and in the latter stages of the painting, light fillings.

These raw primers are great strength and durability applied over the rigid wooden supports or derivatives thereof, but by not referring to the transparent primer in ancient times we have no evidence of aging.

5.2.6. Color primers.

Just as bright primers are useful for certain procedures and techniques, colored, very used throughout history, work with future colors to paint forming optically a new tone that simplifies the job.

The light in these primers is induced by addition of opaque material and dark are produced by adding semitransparencies or transparencies.

These bases are generally colored by a structure composed of simple color, ocher and iron oxide or both together, plus fillers, fine chalk or white from Spain, ocher and red ocher earth plus some other dye and loads more white. Performing the color based primer simple.

Other bases are in the field of gray. They are made by mixing carbon black or mineral and zinc and titanium white, over the whites of loads.

5.2.7. White bases.

The white bases are very common in the world of painting for several reasons. We already talked of its luminosity and part when applying a layer of color can be converted into a colored base without losing the great light that can emit these funds.

5.2.8. Textured bases by additions of materials.

These textured bases can be three types:

- By additions of material to the support.
- By additions of material to the primer in the form of load.
- By additions of material over the primer.

Generally act actively in the painting's aesthetic and plastic, with respect to: composition, texture, chromaticism, and so on.

To the support. They stick to the blank support creating textures and acting in the paintig at a composition level. These materials will be absorbent, so as to be primed or will have a specified quality so that the primer can be uniformly applied.

To the Primer. Are materials that can replace part or all of the load in the primer composition or may be added to the primer, raising the glue-water level proportionally to the added load. There will be a simple rule of three and the recipe looks like this:

Water-cola Pigment + load

These materials include: river sand (washed) or beach sand (desalinated), but have very little absorption. The granite and quarry machacas are of good quality, but not equal to the marble of different particle sizes which are the most absorbent and its forms are awned and grip better to the primer.

To the primer layer. These are the primary function of giving, a more coarse aspect and regular grain to the surface. The fact of adding in the last layer allows us to act with the color of the material, if we use a transparent binder.

The distribution of the addition of materials over the primer can be:

- Total (uniform and volumetric).
- Partial (uniform and volumetric), and both can apply scratches, cuts, stains, etc.

5.2.9. Textured surfaces by manipulation of the mass of primer.

Are those that with the manipulation of primer in mordant state or in the previous period, from fresh to mordant, they offer a textured surface; presenting a tactile and wavy surface to the taste of the artist.

Over fresh we would get round ridges and flat furrows, and in a state from mordant to dry if we interrupt the setting instead of creating the desired texture appear another, even to break the surface of the primer.

The primer films for texturing must be quite thick and contain plasticizer to counteract the tendency to craze.

To produce a dense primer reduce the water content, increase the potency of the glue and the amount of plasticizer so that it appears a more or less dense mass on which can interfere with tools forming grooves, lines, marks or forms that remain registered in the surface.

5.2.10. Smooth surfaces.

In its application by brush can be applied crossed or "Whirling" (circular and semicircular forms) leaving a printed and messy surface.

It can also be applied with scraper. Is carried on extending on a support one or two layers of primer. If the tool is pressed against the support is left to view the fabric of the canvas or if there are loosely it leaves the surface even and smooth.

Both will advance one or two hands to fill the pores of the support, adding a 3% water in each hand to reduce the strength of the glue and applying it on the previous in state of mordant unifying the setting of layers and integration thereof.

5.2.11. Sanded surfaces.

Proceed in the first layers as with the brush and scraper, except in the last two or three layers applied on dry and sanded.

When we have the support seen against the light seems to be covered, without any pore ("points of light"), let dry and sanded the surface with sandpaper wrapped around a "*cala*" (wooden block) or folded and resting on the "*cala*" .The thickness of the sand will give from scratched surfaces, to totally smooth. From one layer to another it must be sanded in dry and surface is cleaned of dust and by tip brush or spray the surface is moistened slightly to incorporate better adhesion to the following primer film.

5.3. FORMULATION.

All primer generally contains: one or more binder materials (glue, plasticizers, emulsifiers) and load elements plus colorants.

We should use glue on all supports except the transparent and the anti-moisture in whichwe will use an alkyd resin or paint applied directly to the support or other binder which acted as primer.

We have already seen the process of preparing indirectly in the study of the glues and the loading materials and colorants. As we focus on the development of the different primers above mentioned (chalk, semi-chalk, oily and transparent polymer).

5.3.1 Crete.

5.3.1.1. Preparation of rabbit skin glue Crete.

- 70/90grs. Rabbit lue.
- 900ml. Distilled water.
- 150grs. White of Spain(Pipeclay) and fine Crete.
- 150 grs. of zinc white.

The glue-water is formed with an amount of rabbit glue ranging from 70 to 90 grs. (in plate or granulated) plus 900 ml. water. Must continue this process: we place the glue's plate, chopped or granulated to soak in the aforementioned ratio of water and deposited in a fresh place for two to twenty hours to fully hydrate it, then heating to the water bath until completely dissolved, thereby obtaining the glue-water.

Of the 970-990 ml. of glue-water, separate 700 ml to make the mass of primer, the rest will be used to prepare the support (canvas, board, etc..). Of the 700 ml., collect 200 or 250 ml. and add 150 grs. white from Spain(Pipeclay) or fine Crete and 150 grs. of zinc white, titanium white or a mixture thereof. This mixture is used in the preparation of white bases

and in the colored ones the amount of zinc white and titanium oxide is replaced by iron light or dark, ocher or any pigment of the color which we are interested. Load and dye are added slowly into the container, leaving it to stand without stirring until all the liquid to soak in order to avoid lumps, the mass will be saked until gets uniform and add gradually the remainder glue-water, stirring gently to avoid bubble formation, to retain any solid element, lumps, bubbles, etc.., all content we strain through a sieve of Nº 50. This mass would be adequate to prime with brush, in case you want a dough mass to implement with scraper, we can remove up to 200 ml. of 700 ml. of glue-water.

Preservatives:

As we studied earlier, in this chapter under the heading of "glues", as a preservative is used formalin or alum. Both can be added to the mass of primer prior to application. Formalin is very useful applied in spray, on the primer, the proportion to be used is 2-4% and to adapt the comercial one that comes to 40% we dilute with water.

The excess mass primer is perfectly preserved without losing its properties in the freezer, so we avoid the add preservatives.

5.3.1.2. Casein glue crete.

- 50/60grs. casein.
- 925ml. of distilled water.
- 10grs. dilute ammonium carbonate in 25 ml of water.
- 150gr. Blanco of Spain and Crete fine.
- 150 grams. of zinc white.

The glue-water is formed with 50-60 grs. of casein (this amount depending on the quality of casein) plus 225 ml. water, we place it for hydration from 2 to 12 hours, then heat to the water bath to 45 -50 ° C and added 10 grs. dilute ammonium carbonate in 25 ml. of water. By adding ammonium carbonate, shake it constantly to mix well with all the content, will produce an effervescence and when stops this, the casein solution is ready. This glue is of great power and require dilution for which we added 700 ml. of water and obtain the glue-water, From it extract 700 ml. to bind the load and the dye as in the previous preparation of rabbit glue and the remainder of glue-water (300 ml. approx.) will be used to prepare the supports. From here the construction mechanism of the primer is exactly equal to that performed in the rabbit glue.

The casein glue does not need preservatives or hardeners to be irreversible once the primer dries. The supports referred to casein cretes are rigid, semirigid or flexible, very tight and little movement (eg linen fabrics which are less hygroscopic and highly stable in comparison with the rest of the fabrics).

5.3.2. Half crete.

We have worked half crete funds in two ways, one with added egg yolk plus polymerised or drying oils and other adding only oils.

5.3.2.1. Half crete with egg yolk.

RECIPE:

- 70-80 grs. Rabbit glue.
- 1000 ml. of water (distilled or boiled).
- 1 egg yolk.
- 25-50 ml. of linseed oil (boiled or polymerized).
- 150-200 grs. white from Spain (Pipeclay) or fine Crete.
- 150-200 grs. of zinc or titanium white or a mixture thereof.

On the colored funds replace the zinc or titanium white by the pigment of the desired color.

In half Crete may be used casein glue but will yellow a lot and the primed surface will lose the light and whiteness, however stopping the dimming when completing drying. This yellowing and cracked by excessive force will make us use the rabbit glue. On the one hand we treat the egg and oil and secondly the water-glue, load and dye to mix them later preventing the decomposition.

We prepare the glue-water with the proportion of 70 to 80 grs. Rabbit Glue 1000 ml. of water, use of this solution 750 ml. for making the primer and the remaining 320ml. to prepare the support. We'll place the egg yolk in the container and gradually add between 25-50 ml. of boiled or polymerized oil while continuously stir until homogeneous emulsion and then incorporate approximately 100 ml. of glue-water, cold or warm, so that no separation of the elements of the emulsion, stirring the emulsion until it is homogeneous. In another bowl place the fillers and pigments, adding enough of glue-water and whisk to a smooth paste, loose, to which add the rest of glue-water slowly while stir to mix.

We can pour the contents of this container into the one where we have the emulsion of egg and oil gradually and stirring, once homogenized, mass primer, we'll pass it through a sieve.

5.3.2.2. Semi-crete without yolk.

RECIPE:

- 70/80 grs. Rabbit glue.
- 1000 ml. of water (distilled or boiled).
- 50/75 ml. boiled or polymerized oil.
- 150/200 grs. white from Spain(Pipeclay) or fine crete.
- 150/200 grs. of zinc or titanium white or a mixture thereof.

On the colored bases replace the zinc or titanium white by the pigment of the desired color.

The basic differences with the above primers are:

- Not contain egg yolk.
- Increase the level of oil in 25 ml., to compensate for the elasticity lost due to the lack of eggs.

The development of the primer is the same as the previous one, although we pre-cool the glue-water (100 ml. Approx.) In the fridge to make it semi-coagulated and emulsify with the oil.

The making is as follows:

- In a container make the dough with glue-water, pigments and the load as in the previous primer.
- In another place the semi-coagulated glue-water gradually adding and stirring at the same time, the oil until emulsified.
- We'll pour the contents of the first container to the second, and as usual, we will gradually and stirring until the mixture appears uniform, finally straining through a sieve.

5.3.3. Oily primers.

RECIPE:

- 70/80 grs. Rabbit glue.
- 1000 ml. of water (distilled or boiled).
- 75 - 215'5 ml. boiled or polymerized oil.

- 150/200 gr. white from Spain(Pipeclay) or fine chalk.
- 150/200 gr. of white or zinc white, titanium or a mixture thereof.

The so called oily primers are those in which the plasticizer component participates greatly, the proportion of oil ranging from 6.5% which is close to the half crete, to 20% which would give a very oily and flexible primer. The mechanism of its preparation is exactly equal to the oily half crete primer.

5.3.4. Transparent primers.

RECIPE:

- 70/80 grs. Rabbit glue.
- 1000 ml. of water (distilled or boiled).
- 75-300 ml. of polymerized oil.

In place of the polymerized oil can be used alkyd resin Cepsa's 265 M 70.

These materials contain no load or pigments in the mass, allowing to appear support's characteristics (shape, color, texture, etc.).. They are constructed based glue-water, polymerized or boiled oil, as these elements are liquid, cooled to emulsify and acquire density, apply warm with scraper or brush.

5.3.5. Polymer primers.

RECIPE:

- Base 250ml.
- Distilled water 750ml.
- Load 150g.
- Dye 150 gr.

These primers are the simplest to make because it contains only the acrylic base, water, and dye loading.

We introduce the base and water in a container where the load and the dye are added, beating until dough is smooth and finally straining through a sieve.

5.3.6. Antihumidity primers.

RECIPE:

RECIPLE:

Saponified wax:

- 25 grs. bees virgin wax
- 250 ml. of distilled water.
- 10 to 15 grs. Ammonium carbonate.

Once saponified the wax we add:

- 70/80 grs. Rabbit glue.
- 750 ml. water (distilled or boiled).
- 75/300 ml. Polymerized oil.
- 150 grs. white of Spain(Pipeclay).
- 150 grs. zinc or titanium oxide, or the necessary pigmentation.

The saponified wax have the mission to protect the rear face of the painting and a constituent part will be the wax, which can be coupled to the primer or take part of a binder which acts as primer.

Associated with the primer, we include saponified wax, which is fully compatible with other aqueous components.

The preparation of the primer is as follows:

- First we elaborate the saponified wax melting to the water bath 25 grs. wax in distilled water and precipitating 5 grs. ammonium carbonate and 5 ml. of ammonia of 20 ° Baume, stirring until cool and store in airtight container.
- On the other hand, we emulsify a part of glue-water (previously cooled) with the polymerized oil; another part of glue-water is emulsified with the saponified wax: and with the rest of glue-water, beat the pigment and the load. The whole ensemble is joined in the following order: A oil emulsion we add the wax emulsion and glue-water, stirring until it is integrated throughout the content, add the dough with the pigment and the load, stirring constantly until the homogeneity of the group .

The other form of antihumidity primer is that of beeswax, melted with dammar resin and diluted with turpentine whose proportions are:

- 8 parts of resin.
- 4 parts virgin wax of bees.
- 9.5 parts of turpentine.

- 20 parts of zinc or titanium oxide or both at 50%.

Be prepared by grinding the resin, breaking the wax and incorporating them into turpentine. By a water bath melt the whole and snuck hot and incorporate the pigments, stirring until a creamy paste.

5.4. DEFECTS ON PRIMED SURFACES.

In preparing supports or on prepared and ready to paint surfaces, we face sometimes problems can be solved and others who force us to reject the surface and even change of support.

Next we will mention these shortcomings by presenting a possible solution.

5.4.1. Cracks and fissures.

We have produced by separation of the yarns of the fabric and produced by the opening of the primer.

The separation of the yarns is given by using low-resistance fabrics subjected to a tightening or by moistening and drying the fabric very quickly undergoing a violent contraction, these cracks are spread across the surface.

Another type of cracking occurring in the corners of the support. These are caused when nailing the fabric too much tight. Also in this case are terminated by separating the fibers by drying the primer applied quickly, there not being possible solution, therefore it is advisable to switch fabric.

The separation of the primer itself or cracks in it. Apart from giving rapid drying, also happens when giving the support a primer composed of one or more thick layers, which may be little of plasticizer opening fissures in the primer.

If cracks are short and without many branches can be overcome with a paste made of light glue, egg yolk and white of zinc and titanium 50%, according to the following recipe:

- Glue. 12.5 grs.
- Water. 187 cl.
- Egg yolk. 7 cl.
- White. 56 grs of zinc.
- Titanium white. 56 grs.

We'll moisten the crack, and discharging of primer the sides of the fissure irregularly, after cleaning of dust wet it again and with a straight spatula cover with the paste obtained above. We'll sand the remaining burrs with fine sandpaper when dry. If the cracks are large or highly branched, we can not solve the problem and we would change the fabric.

5.4.2. Linear cracked.

They are generally produced by using glue with an excess of strength, lack of plasticizer in the primer and use fabric with an inadequate quantity of synthetic material in its fibers.

5.4.3. Glue with excessive force.

If the glue is casein (glue of a great power), then will appear a small cracked very regular, almost geometric. In contrast if rabbit's it will be somewhat higher, depending on the amount exceeded the size. The stronger the glue, the smaller the crazing. In the first layers avoid solvents as fat paint films act as plasticizer, penetrating the base.

5.4.4. The lack of plasticizer in the primer.

The absence of plasticizer is a defect only when primers are applied on inadequate supports or no care is taken that they require. So the supports for these primers must be rigid. Flexible should be of fabric avoiding always the movement of the support for its low level of flexibility and we will try it to present a low level in hygroscopic.

5.4.5. Excessively thick layers of primer.

We already saw that thick layers of primer produce cracks in the supports containing excess glue, for which must always be noted that the primer layers to be applied by decreasing the strength of the glue with the provision of a small amount of water as increasing the number of these, regardless of the thickness thereof.

5.4.6. Disproportion in the glues.

When despite recommendations we continue wanting to apply a thick layer on a support, occurs that when drying, the glue or solid part, because it is free of water, remais in the surface zone of the support, then it remains disproportionate of glue, having a determined tension in the surface zone of the primer. In contrast, if layers are very thin they form a block, leaving the glue evenly distributed among them.

5.4.7. Inadequate supports.

They are fabrics whose fibers are composed of synthetic materials or in a very high proportion, which does not absorb the aqueous media. In the drying shrinkage produces cracked, in some cases becomes so strong that it can even lift the primer from the support by the lack of grip.

5.4.8. Landslides.

These occur when priming contracts with violence and as in the previous case not have a sufficient grip to the support.

Detachments can not be corrected, so that we will clean the primer the support, acting again properly.

5.4.9. Soft primers.

The absence of glue or plasticizer makes pigment and the load not to be sufficiently bonded, so that the color drops off it when passing the hand. We will have to apply one or two coats of glue-water with plasticizer, highly diluted with water to penetrate inside the primer strengthen it.

5.4.10. Clears or light spots.

These supports primed that are seen against the light, have bright spots is because of the lack of primer. We will give the layers on mordant, and if the base is dry, we'll moisten the surface with water and we'll prime a layer with a scraper, forcing the mass entering the pores. Once covered we'll prime, as prefered, with successive layers.

5.4.11. Bags.

They occur not clean the substrate prior to priming. Solutions depend on the type of stain.

Stains on the fabric before priming. Depending on the product attached, do a general wash or clean with a solvent.

Spots in the course of the priming. Shall proceed equally, and may even scraping or sanding in the case of using wood as a support.

In the case of appearing a bag. Removed the primer layers until a solid base, which we'll scrape with coarse sandpaper and priming with several

hands; sanding when dry to match the rest of the surface and continue with the primer.

5.4.12. Scaling.

Generally, occurs by changing the glue in the process of priming, using a stronger or imbalancing the primer composition. We refer to the comments in previous sections regarding the effects of an imbalance in the queue.

5.4.13. Bubbles or craters.

They are pores in the form of craters that can appear at any stage of the priming. Bubbles adhered to the brush, if they explode advanced drying the primer layer, a pore remains, not yet closed by giving several layers.

5.4.14. Creping.

They are small upheaval of the last sheet of plywood. By absorbing the primer irregularly because of the permeability differences in the grain of the wood.

The solution is to give the first hand of glue-water scarce of water and emulsified with a plasticizer in order to extend it easily with minimal water. And wait for it to dry to sand for uniforming the surface to continue with the other layers as usual.

5.4.15. Coagulation.

The primer is solidified by evaporation of water that remains it in suspension or by coagulation when cooling, so that these surfaces are given a primer layer with scraper forcing the dough to enter the pore and cover.

The coagulated primers are attached superficially the liquid parts because do not penetrate in the support.

The solution could be to maintain the mass of priming fluid with a thermo-regulating coocker, while maintaining the enclosure to a suitable temperature when priming and drying.

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