THEMATIC UNIT Nº4

PICTORIAL SUPPORTS AND ITS VARIETIES.

4.1. DEFINITION AND FUNCTION OF THE SUPPORT.

Can be considered pictorial support can to any surface that, properly handled and prepared, serve to sustain, in a technically safe way, the various components of all the painting works. The most important requirements to be met by materials that will be used as pictorial support are dimensional stability, good mechanical properties, light weight, reduced thickness, solvent resistance and water resistance to biological agents, resistance to atmospheric agents, easy to manufacture and reasonable cost, good aesthetic appearance, good absorption, low toxicity of the components and reversibility.

4.2. A BRIEF HISTORICAL VIEW.

Since that painting there, has also been necessary to have a support which apply, in that sense the cave painting executed their works directly on the walls of caves' rocks and shelters thus becoming the firs pictorial support of history. In general, we can say that the paint on walls dominated the ancient times, in that sense we have the testimony of the beautifully preserved murals of Pompeii. This hegemony of fresco painting on the wall remained unchanged in the Romanesque period until the Gothic period. Another issue is that the paint in that historical period was very subject to the architecture, so that when the Gothic large windows appear and reduce the size of the walls, much of the wall painting was replaced by the stained glass windows. Coinciding with this period, led to the rise of wood painting. However, the wall painting continued to have some continuity in subsequent periods as the Renaissance, finding authentic universal works of painting as the frescoes by Raphael and Michelangelo in the Vatican. Also during the Baroque and Rococo continued working with illusionistic decorations located in walls and ceilings of palaces and buildings.

After the wall, wood is the second most used pictorial support at least until the Renaissance. Some examples that have survived from ancient times are Egyptian sarcophagi dating back to around 2000 B.C. and many times were painted with tempera and encaustic procedures. Since late Egyptian art in the centuries II to IV, period of the Roman domination, there are the famous portraits of the Fayum, of funerary caracter, and constitute a group of works on woods painted with encaustic. The wax itself can be considered an insulator that has helped these works have been reached until today, in a fairly good state of preservation. However, the period of greatest expansion of the wooden supports was certainly the Middle Ages, and particularly in Gothic art.

The more used woods were in ancient times the walnut, pine or fir ones, but obviously it depended on the raw materials available in the surroundings of the execution place of works. Thus in Italy was frequent use of poplar wood, while in northern Europe was more common oak, beech or pine. Also birch, cedar or poplar has shown good properties to develop hardwood boards as pictorial support. Finally, in the modern age were introduced supports made of very hard tropical woods like mahogany.

In general, when required a large format surface, it was necessary to prepare it by joining and assembly of several boards, using wood joints instead of metal. This was necessary because the metal is oxidized and spoiled subsequent paint layers. This assembly process is already described in works such as De Diversibus Artibus, of Theophilus (early twelfth century) or "*Il libro dell'Arte"* of Cennino Cennini (1390).

After the Renaissance, the works with wooden supports were gradually reduced. The reasons for their gradual replacement by other supports such as canvas, have much to do with some of their outstanding problems. In that sense, the wooden supports in the case of larger works, are too heavy, have a tendency to warp or crack. Furthermore, if you currently want to use noble traditional wood, is too expensive. Thus, contemporary artists have replaced the wood surfaces for painting by others that offer similar qualities of rigidity but with greater stability and lower prices. Among these substitutes for wood as a support, we can enumerate the tablex or masonite, particle board medium density (known by the acronym DM), plywood, and blockboard.

The fabric as a support does not generalizes until Renaissance, although it is known that already in the Rome of Nero was used as witnesses the reference by Pliny the Elder on a portrait of Nero on a cloth over thirty meters. However, few are preserved on canvas painting prior to the fourteenth century, both because they are more sparse, and the fact that on canvas was painted profane subjects, such as banners or holiday decorations, which determines that it will not be preserved.

As we have noted since the Renaissance began to become more frequent use of the fabric as pictorial support, up to this day as the more widespread support in the last 500 years. Already in the fourteenth century in places like Venice, found great advantages in paint on canvas that excelled in fresco to be more resistant to cold and wet of winter. But the main comparative advantage of the canvas against the two previous supports (the wall and the table) is its lightness, which allows easy transport and achieve great support formats not too heavy. Thus,

expanded commercialization. Another issue to consider in the process leading the fabric to the main pictorial support is the evolution of tempera painting to oil painting. Both processes are linked historically as new needs require new materials.

Well into the twentieth century, the abstract expressionist painters decided to use the fabrics regardless of the frame. This allowed them freedom of movement on the work that was extended on the ground or attached to the wall. Also worked on unprimed canvas, so that the fabric absorbed all the paint, achieving blur effects as seen in the work of Helen Frankenthaler (1928) or Morris Louis (1912-1962) Other painters later acted on the support itself, cutting or punching or folding it as Lucio Fontana and bending as does the Spanish painter Ángela de la Cruz (1965). Today, the fabric is still the most common support for oils and acrylics. On the canvas or paper have been printed images in photographic techniques, transfered or have accumulated and added all kinds of materials and found objects. This has been also associated with the emergence of new synthetic resin whose binder power is so high that can adhere to the support, materials of very different nature. Moreover, the range of synthetic fabrics has increased considerably in recent decades, allowing introduce elastic fabric in the practice of painting with the artistic possibilities that entails.

In the twentieth century, the break with the traditional elements of painting (genres, techniques) has determined the application of paint on a wide variety of media. Apart from minority media such as metal, the current painter has resorted new materials. Examples are the works over acetate of artists such as Scott Wolf Son, Ann Peyton Hurt, Frederick Mañanes or Jaime Sánchez Alonso. Or the numerous applications have been given to plastics as pictorial supports, including Plexiglass (methacrylate), PVC, polycarbonates, PET, Expanded Polystyrene, etc. Examples of these are the works of authors such as Charles Biederman, Piergiorgio Zangara, Lourdes Castro, Sybille Pattscheck, Richard Tuttle, and Hugo Martinez-Tormo. The list of authors and materials would be endless, and althoug is not its use as massive as the canvas, It is necessary to mention the contemporary painter's interest in experimenting on all supports. In that sense this experimentation deppends on the particular characteristics of these new supports. Thus in the case of methacrylates, the artist can benefit from the transparency of the medium, and optical possibilities to apply new concepts of work in layers. Finally, the universe "paint-sculptural" of many contemporary artists such as Bill Thompson, Etienne Bossut, Lynda Benglis,

Eduardo Costa, Tom de Groot, Harald Smichtz-Schmelzer, Markus Linnenbrink, or Peter Simmermann, among many, it pushes the paint to three dimensions, in an expansion process that seems to be endless. In that sense, plastics and synthetic resins can act as necessary and ideals vehicles to carry out these scenarios, since they act both as supports and as binders.

4.3. SUPPORTS' CLASIFICATION: FIXED AND MOBILE.

The range of supports used in painting, as already commented, has been opened in recent times because artists have increased their scope for action in the plastic arts, not limiting in the pictorial field to the two-dimensional painting and of a classical style with a specific location (usually indoor) and making the paint comes out of its traditional context and participant in an active way in contemporary society. The supports in number can be infinite, there will be many as we can transform surfaces, only need that we accommodate them to receive, contain and "conserve" our paint optimally, fulfilling these three functions, as if they, or any of them not met, our mission will have been useless, we are interested in being the optimum in the making and the conservation of the work. Besides the support with his primer, in the act of receiving the paint, it has to colaborate, facilitate and enhance the personal plastic-pictorial work of the artist. In any case, despite the almost infinite variety of possible supports, it is necessary to stablish betwen them a classificatión that directly affects the pictorial practice and the final result of the pictorial object.

FIXED SUPPORTS.

Any support that because of the characteristics of the materials that comprise it, their methods of construction, or being intended to form part of an architectural space precludes their mobility and needs to be painted in the same place where it is located. A wall built with stone or brick and covered with a mortar of lime and sand, to be covered with traditional fresco, is a clear example of this type of support.

WALL: HARD AND IMMOVABLE (minerals and porous supports).

Lime Plaster Primer

Lime mortar consists of 1 vol. Slaked lime, 3 or 3.5 vol. of sand and an appropriate amount of water. The painter of fresco paint over the plaster with a fresh lime water mud and pigment without binder.

Cement or concrete plaster.

Painting with Caparoll or Minercolor, is a contemporary alternative to traditional fresco wall painting. They are silicate paints that penetrate inside the cement. We work with water, like acrylic, 50 years warranty. The resistance of the silicate paints against the effects of calcium hydroxide produced by the setting process, allow these pictorial coatings counter possible eruptions on the surface of cement may emerge from calcium carbonate and calcium sulfate. Distributor in Valencia: Herminio Sanchez.

MOBILE SUPPORTS.

They are supports that unlike the previous ones, can be transported, with more or less easily, from where they are painted to other locations. Traditionally, this type of supports it has been called easel painting and often traditionally mounted on racks.

4.4. MAIN TIPE OF MOBILE OR TRANSPORTABLE SUPPORTS.

Within mobile or portable supports we can find with many surfaces ranging from rigid and flexible supports, included semi-rigid supports, which have intermediate characteristics between the rigid and flexible. That is, while having a degree of flexibility because of the composition of its materials, construction or thickness, allow easily be bent but not folded or rolled, and can alter its original form in a more or less moderate way.

RIGID SUPPORTS.

This are all those who, by the composition of its materials, construction or thickness, not allowed to be bent, folded or rolled, keeping its original shape constantly.

WOODS AND DERIVATIVES OF WOOD.

Hardwoods.

Of all supports, wood can be considered one of the most used throughout the history of painting procedures.

The wooden boards were used as supports by the ancient Egyptian and Greek painters, as numerous written testimonies of those who make mention many times the writers of different periods and countries.

As for practice, we emphasize that drying or curing of the wood is essential to use for artistic purposes. It is also necessary to keep the woods in environments which are not extremely wet or dry with a relative humidity and temperature as constant as possible, Yet the wood itself first, after the rig and the primer and, finally, the paint layer, are not able to follow those sudden movements of expansion and contraction, which can cause a series of major damage to the finished work.

Moreover, when a primer is applied, it should be noted that the side painted of wood panels tends to warp out because the reverse dries more quickly. For that reason we recommend priming the reverse also, this becomes even more evident when printed with rabbit skin glue. As a recommendation, before priming the wood, it should be wet or treated with protective anti-parasitic for woodworm and moth. Currently, solid wood tables for manufacturing supports with pictorial purposes have fallen almost into disuse, being displaced by the boards of plywood or chipboard.

Plywood.

English patent of the late eightieth century, not widespread until the beginning of the twentieth century. Overlapping veneer perpendicular to each other. Its unique internal structure guarantees a high stability in the bulges. They are manufactured from wood veneers of different thickness, stuck together and cross their nets to counter the forces and provide a stable surface. The plates of the sides, usually of wood with a good quality, for example, northern pine (white and clear of knots), oak, walnut, etc.

The centers are manufactured from lower quality wood, are much thicker and are called soul. The thicknesses that are produced are of 3 to 16mm., the most common of 5mm.

Agglomerates and Conglomerates.

They are manufactured on a large scale since 1950. Some are coarser based on gluing and pressing of wood shavings. Are distinguished by the finest chip size and thickness of the agglomerate, existing in the market from 0.7 to 3 cm. The chips are bonded together by a urea-formaldehyde glue and pressure with steam, so that we see a compact and uniform surface. His faults, weight and fragility of the edges to blows.

There are also wood and paper composite thinner and made of paper pulp and wood chips with a maximum thickness of 1.5 mm. This type of

agglomerate also is fabricated by vapor pressure. These supports are well behaved if handled correctly.

They are highly absorbent and very easily flex, so that their preparations are to be performed on a flat surface and have to dry on said surface. Have a strong tendency to bend and warp, and it is necessary to subject them to a wooden structure or frames.

Tablex or DM.

The tablex are manufactured from shredded wood waste and paper, pressed with steam and heat at a sufficiently high pressure so that the fibers are interwoven to form a compact and uniform net of high resistance to deformation. Its great enemy is moisture.

These boards have a glossy side, resulting from the heat and pressure exerted on them. Said face is slightly absorbing. To prime it have to sand it with relatively thick sandpaper previously to scratch the surface, in cracks caused by the sanding will be subject the priming. The rear face is of a texture like, almost geometric, highly absorbent, for impriming it sand has previously in order of suppressing the ridges of the texture. To inhibit it from the absorption, we will give two or three layers of water-glue. Always sand the smooth side because can create impurities that can repel the primer.

Both plywood, such as clusters or DM at all times avoid pinning, but if you arrived to use, we would cone head nails, steely or galvanized nailingthem deep in the plywood. Finally we paint applied desirable that caulks and primers antirust, combined with a paste of glue, fillers, colorants and plasticizers.

FLEXIBLE ELASTIC SUPPORTS.

Are all those who, by the composition of its materials, construction or thickness, allowed to be bent, folded or rolled, so it may not maintain its original shape constantly. Cloth on a frame or a sheet of paper are clear examples of this type of supports.

SUPPORTS BASED ON TEXTILE FABRICS.

The tissues can be classified in different ways, depending on certain conditions, the most fundamental are those that give rise to fabrics, whatever the origin of the fibers involved in the composition and

complexity line interlacing. The tissue that most concerns us to use as a pictorial support is made from threads of vegetable fiber.

The repeating system of linking the threads on each pass is what is called ligament tissue. According to the ligament used vary the appearance and properties of the material, in this sense are the most common ligaments:

Taffeta.

It is the most common ligament in a tissue, as its simple structure and also the most closed to touch every point of ligation, with its four sides, with many others. The threads intersect perpendicularly with two threads and two passes, featuring a visually cross appearance. Taffeta weave is the type most commonly used in fabrics used as pictorial support at present, also because this type of ligament provided that use the same type of yarn is the most stable in the face of possible expansions and contractions that can suffer tissue.

Twill.

The twill is easy to identify by presenting visually look of diagonal lines with a slope of forty-five degrees. Such fabrics are used as support for large-scale works and decorative character painted ones which basically tempera to the glue. Generically this name was also applied to any type of cloth that had been used for the same purpose. Personally it is a type of ligament that we do not recommend putting on a frame, another issue is that it is for a fabric designed to be glued to a rigid support, such as table, plywood or MDF.

Spikelet.

This tissue type is named for the visual aspect has its ligament, herringbone pattern.

Tablemat.

The tablemat ligament presents a more complex system. It was widely used by the Spanish school in the XVII century.

As a precaution before using a tissue as a pictorial support, adjacent to the ligament (which we recommend the type taffeta), it is necessary to note that some fabrics show a difference in thickness between the threads of the warp and woof, not makes them desirable as support, because when you tighten on the frame different tensions are generated,

leading to deformation, if you get to paint on fabrics such, there may be damage to the paint layer.

Nor is it advisable to use fabrics made from blends of fibers of different type or origin, since they may be different behavior and hygroscopicity, causing damage similar to those in the previous case.

The ideal preservation of the tissues of plant fibers is 20 ° C in temperature and humidity to hover between 50 and 70%.

The widespread use of plant fiber composite fabrics dates back to ancient times, they have found remains of vegetable fiber textiles some 20,000 years old.

MOST COMMON FABRICS.

Linen fabric = Linen.

Been known for about 6000 years. The level of hygroscopicity is the lowest of all natural fibers, this makes it the most stable of the canvas. The fibers are highly resistant to breakage, by making it also, in the canvas which allows greater tension of the fabric. Admit glues, fillers or colorants perfectly, distributing them, uniformly over the surface of the fabric. Affecting only (as is any other fiber) oils placed directly on them, making them drying out and therefore will lead to breakage.

In the linen is detected adulteration by analyzing the fibers of a thread under the microscope, we observed similar but distinct fibers in color and texture, usually used in the adulteration of hemp fibers.

Cotton fabric.

Is collected from the cotton plant ("Gossypium herbaceum"). Fiber comes from white lint that surrounds the seeds. These fabrics are woven though from very old (it was already used by the Egyptians and introduced to Europe by the Phoenicians and Arabs), Dated in mexican caves from 8,000 years ago were not used in paint until the industrialization of the process of weaving in the nineteenth century.

Its fibers are of a grayish-white, and views of the lens are very uniform. They have a very high level hygroscopic so are not suitable in fatty techniques and especially in its use with lean binders. Yes is recommended for acrylic techniques to reduce or even eliminate the passage of moisture into the interior. Its primary positive factor is the high

light radiation emitted through the layers of primer. A secondary issue is the proper absorption and distribution among the fibers of the priming materials.

These fabrics are manufactured in all sorts of thicknesses and ligaments and lean painting techniques is advisable to glue them to avoid rigid movements.

Hemp fabric.

Hemp fabrics are composed of fibers obtained from the hemp plant *Cannabis Sativa*, originally used in Japan, Persia and India, this plant is a crop similar to flax. Hemp fibers are lighter than those of flax, drier and less resistance. The hygroscopic level is higher. Therefore, are more mobile but have a good performance in paint but not equal to flax.

Jute fabric.

This tissue is generally manufactured fabrics and burlap sack. There are some fabrics that are made primarily from hemp fibers of poor quality remains and some bargains from other fibers. To give sizing to the fibers they are mixed with fish oils and clays. These fabrics are manufactured upholstery and destination as the basis for carpets and linoleum.

In painting are little used because they obscure much, absorbe primer material inequality, and need many layers to cover the pore. Best for paint is tight frame, uniform thread, lint clean and bright and always washing prior to priming.

Viscose fabric = Synthetic Silk.

It usually appears as combined with cotton blend fabric, but inequality in contraction makes it unwise compared to pure linen.

Dralon.

German trademark an acrylic synthetic fiber, soft to the skin, with a silk-like appearance and resistant to the lye and acid.

ADVANTAGES AND DISADVANTAGES OF USING FABRICS AS PICTORIAL SUPPORTS.

Advantages:

- They have a permeable surface and good receptiveness to the paint layer with proper preparation.
- They allow us to execute large paintings, greatly lessening the weight and price relative to the tables. Can be easily transported and offer the potential to be rolled up for transport.
- It is easier and cheaper to buy a good canvas that a good board.
- Disadvantages:

  They are very sensitive to changes.
- They have a very fragile surface, breaking with relative ease and frequency.
- When working with very resinous mediums or when pictures are varnished, can originate in the paint layer cracked at the slightest touch, demonstrating the typical crackle in a spider web, they can also occur when too much glue was used in the preparation .
- Are very sensitive to the action of organic solvents, oils and derivatives. For that reason, is important to properly apply a good priming, to act as an insulator.

SUPPORTS OF PAPER.

Leather and Parchment.

Technically it is equivalent to a laminated paper but maintains a large difference in the raw material being processed. This is very fine tanned skins of sheep, calves and goats. Much more durable than papyrus, allowed rectified by careful scraping. A palimpsest is that parchment that has been "scratched" and rewritten again. One of the most common carriers of plastic pictorial protomedieval was the parchment. Its composition is threadbare sheepskin, dressed and stretched to become so thin that it is almost transparent. It was used extensively as a basis for the illustrations and writings of the gospels, codices, Bibles and Missals from the fourth century *Vatican Virgil Manuscript* until the twelfth century. The conservation of parchment has allowed us to study the plastic formalities Romanesque world, largely have been lost in the mural.

Papyrus.

It is an ancestor of the present paper. 4,000 years old from the Papyrus plant. It subsequently went to be replaced by the parchment.

Chinese paper.

2000 years ago TSAILUN invented it, 1st Minister Han Dynasty. Mulberry plant fibers, grass and bamboo mixed with tissue debris. It was introduced in Europe in seventeenth century from Dutch ports. Currently this role is highly appreciated by watercolor artists and engravers.

Arab paper.

It came from the Arab World spread in ninth century from Baghdad to the Mediterranean, made from fibers of grasses, shrubs and trees. The oldest paper of Europe by non Arab was built in Fabriano (Italy) in the middle of thirteenth Century. From the fourteenth century the paper begins to be used in the workshops of painters (at least in Italy).

Rag paper made by hand.

In any case, European papers were made from used fabric, and linen rags. These materials were Europeans who replaced the fibers of grasses, shrubs and trees used in the East.

Machine-made papers.

At present most of the papers are made from wood pulp lignin free.

PAPERS DEPPENDING OF ITS USE.

Oil paper.

More than 200 g/m2 with a lot of glue.

Fabriano Academy.

Dimensions 100 x 70 cm. (350 grams) Approximate cost: 2.10 Euros.

Painting Paper.

Dimensions 50 x 65 cm. (400 gr)

Paper fabric.

Dimensions 50 x 65 cm. (300 gr).

Watercolor paper.

Starts to be manufactured in England in the middle of XVIII century, with a more or less rough surface, it should dampen both sides before painting.

CARDBOARD SUPPORTS.

They usually have more than 500 grams, *chipboard or stone* is presented as a 100 x 70 cm., And usually 3 to 4 mm. thick. This type of carton is made with much waste paper, textile, and can be sold even already primed. The primer must be made on both sides if latex 1/3 and if rabbit glue with 70 gr. glue per liter of distilled water.

4.5. ALTERNATIVE OR LESS FREQUENTLY SUPPORTS (metals, glass, marble, etc.).

METALIC SUPPORTS.

Have been unusual in painting, because of all the defects that lead: rust, are fragile to impact, bend quite easily, despite these drawbacks, well preserved pieces of copper in small format, Dutch and Spanish (Lazaro Galdeano Museum in Madrid is a good example). The metal brackets can be classified within the group of semi-rigid, meaning that depending on the thickness and size can be held by themselves or should be attached to other rigid supports. The treatments to which we submit are: cleaning, degreasing, deoxidating and scratching. The chrome and nickel are not recommended treatments, because although harden the surface making it more resistant to oxidation, difficult subject of the primer and paint.

CLEANING AND DEGREASING METAL PLATES.

The metal surfaces need to be, first, degreased and cleaned of oxides. This is done:

- Brush the plate with wire brush (in the case of oxidized areas).
- Degreasing with liquid soap and water.
- Will remove the remaining oxide by immersing the iron in water acidulated with nitric and a will wash with a stream of water.
- Rubbing.

MORE METAL SUPPORTS USED IN PAINT

Copper.

This is a support that began to be used quite in Italy and Holland from the second half of XVI century. The Dutch illuminators developed a great expertise in this support. Copper is a support without pore with the disadvantage of forming in unfavorable conditions green copper with fatty oils. The primer is best based on white lead and linseed oil. As an example we mention the small format work of Jan Brueghel the Elder entitled Christ in the Storm on the Sea of Galilee, 1596. This work belongs to the Museo Thyssen-Bornemisza andremains in excellent condition. In this book Jan Brueghel the Elder applied directly oil on the copper foil unprimed, only applying sanding on the metal. According to historian Svetlana Alpers the use of this material also has direct connotations with the justification of the high price of the works. So that the application of materials such as genuine gold leaf, lapis lazuli as a pigment, and copper itself to the support, raised the price of the work far above the objects they represent. Within the painting on copper and given the geographical proximity, it is worth visiting the ecclesiastical museum of Mula (Murcia) where we can find good examples of miniatures on copper. These cases have not been isolated, and we can say that copper is the metal support traditionally used in the paint and the results have been quite positive, although according to Mayer, a delicate conservation.

Zinc.

Difficulty gripping. Has an expansion coefficient different from most of the imaginable techno-pictorical coatings, making it easy to cause cracks and crackled.

Iron.

Deoxidation before with oxy-no or red lead paint to the oil. Once dry and can be primed and painted white below.

Steel.

It's hard to scratch, relative to other metals have low oxidation, expansion and contraction, is ideal for painting.

Aluminum.

(Electrically oxidized aluminum). Although this type of metal is treated with a porous coating based Eloxal, which facilitates that can be primed with traditional applications of crete or semicrete, we recommend synthetic enamels both the essence and the water, being more optimal way of primer for metals. As always necessary to degrease the support prior to painting.

Perhaps it is the most widely used metal support in contemporary painting, mainly due to its lightness and its shrinking cost. The material for pictorial purposes is allowed with open pores in order to use any primer. You can paint in any technique and fatty acids that form in oil painting can not attack because of its great stability.

Gold and silver

Metals are more stable and have been widely used in paint (Romanesque and Gothic period), especially the gold into thin slices called "gold leaf". Its resistance to rust and other damage is more than demonstrated in the Gothic panels. Today its use has fallen quite often being replaced with sheets of gold leaf and silver fakes.

GLASS

Long before man had the knowledge required for the manufacture of glass is used it in its natural state for the production of everyday utensils such as knives and arrowheads. One of the most used natural glass was obsidian.

There are no exact data to tell us with certainty where for the first time, started manufacturing artificial glass. One hypothesis might be, as it did many centuries later with Prussian blue, a chance event would lead to a fire to melt together any silica sand and soda. Some authors believe that the remote origins of glass making came from Mesopotamia. But the more specific place it in Egypt in the eighteenth dynasty (sixteenth century BC), the first industry itself, this new material to humanity. From that moment began a further development that has survived until today and has turned to glass in a daily material in almost all of our environment. Apart from the use he had in the past as an ornamental, almost exclusively, for the realization of stained glass, glass has good qualities as a pictorial medium, but only for those procedures that exhibit good adhesion to the substrate, as the various techniques procedures to oil, and paints based on alkyd resins and polyurethane. Also interesting is

the use of lacquer bulb transparent color to achieve results equivalent to the old colored medieval stained glass.

Best results are obtained when the receiving surface of the paint is scratched previously, acid-treated or, better yet, by sandblasting.

PLATES OF NATURAL STONE, MARBLE AND OTHER MINERAL SUPPORTS

From the Upper Paleolithic are striking examples of the use of stone for support. In the caves of Altamira can see how the primitive artist uses, intentionally, accidents offering stone walls in which it operates. In ancient Greek and Roman art work using the encaustic wax.

In any case, despite being one of the first supports used by man, both natural stone and ceramic tiles and more recently, artificial stones, have not had a too widespread to be very rare to use as support for painting. This is mainly due to two major drawbacks, first its high weight to large format and relative fragility to shocks and scratches.

Its advantages as support, we highlight the almost total lack of phenomena of expansion and contraction with changes in temperature or humidity, and the lack of movement due to these causes (which are always a potential hazard in most the media used for artistic purposes) Thus, we can say that the stones are generally very stable, and provide very good qualities as support for virtually all painting procedures and development of its various techniques.

4.6. BIBLIOGRAPHY AND WEB LINKS.

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