

FURNITURE DESIGN OUT OF WASTE PAPER

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ABSTRACT

The history of paper mache goes back to 200 AD. Modern plastics and derivatives becoming more usable and durable the paper mache is still a great and cheap way of creating models and decorative projects.

KEYWORDS: Paper- mache, interior, prototype

INTRODUCTION

Paper Mache is also known as chewed paper, pulped paper or mashed paper. It is the mixture of pieces of papers with adhesives like glue, starch or wallpaper paste. The products produced from Paper Mache can be snuff boxes, decorative moldings, masks, boats, lamps, cups, furniture or other objects of utility and home decor. It is also extensively used in traditional Indian folk art. Nowadays Paper Mache sculptures are used as profitable building materials for numerous traditional activities and ceremonial activities, also used in arts and crafts.

Helmets: Paper was discovered in China in the Han Dynasty (202 B.C- 220 A.D), which made the Chinese the inventors of Paper Mache. Helmets, toughened with many layers of Lacquer were made from Paper Mache by Chinese. This art form was later known to exist in Japan and Persia, where Paper Mache was used for mask making and festive decoration. It then progressed to Spain, France, Germany and finally, India.

Decorative things: Paper Mache has its own history in America. Unlike Europe, it was used more as a decorative item than a manufacturing product here. Numerous objects are coated with lamp black and varnished to emulate lacquer. They were decorated with paint, bronze powders and shells in the form of flowers sprays and landscapes.

Furniture: During 17th century Paper Mache was experimented to produce numerous types of furniture as well as dimensional adornment for application to architecture.

Firearms: Paper Mache was used in various firearms as a material to form sabots. Regardless the very excessive pressures and temperatures in the bore of a firearm, Paper Mache proved to be powerful enough to hold the pressure, and push a sub clavier projectile from barrel with a high degree of perfection. Paper Mache sabots were used in each item from small arms, such as the Dreyse needle gun, up to artillery, such as the Schenkl projectile.

Details in architecture: In Europe around 1725, gold covered Paper Mache initiate to emerge as a low-cost replacement to uniformly treated plaster or carved wood in architecture.

Boats: Paper canoe was one common item made in the 19th century in America made by Waters & Sons of Troy, New York. The discovery of the continuous sheet paper machine enables paper sheets to be made of any length, and this made an ideal material for building a seamless boat hull.

Paper observatory domes: Paper Mache panels were used in the late 19th century and early 20th century to produce lightweight domes, used for observatories. The domes were constructed over a wooden or iron framework. The domes used were light in weight so that they could be easily rotated to place the telescope opening in any direction and large enough so that it could cover the large refractor telescopes in use at the time.

Combat decoy: The British employed Paper Mache figures resembling soldiers to draw sniper fire. Some were equipped with an apparatus that produced smoke from a cigarette model. Bullet holes in the decoys were used to determine the position of enemy snipers.

Theatrical use: Paper Mache is an economic building material for both sets and costume elements.

Puppetry: Paper Mache is used in puppet building, including marionettes, hand-puppets, rod-puppets etc.

REVIEW OF LITERATURE:

PAPER MACHE IN DIFFERENT PARTS OF WORLD

1. An extensive world market already predisposed to quality paper mache products of all types existed at the beginning of the 20th century, ensuring a successful revival of the art.

2. In the Philippines, the multiple productions of paper mache objects (takas) first required the hand carving of hardwood sculptures. These became the positive wooden molds (takaans) that were coated with wax release agents. Then pieces of paper soaked in natural rice starch were laid upon the forms and dried. Once dry, the tough paper shells, which mirrored each woodcarving, were cut away with sharp blades. The front and rear halves were peeled off and re-joined. Seams were papered over and the hollow, light-weight paper mache castings were then embellished and protected with paint and gilding. The process was repeated again and again. When paper mache artisans completed their orders, the carvings were retired.

3. Venetian paper mache masks were derived from carvings as well as paper mache costumes and ceremonial items used in diverse festivals and holidays around the world. The decorated masks were hand painted then varnished and waxed.

- Carnivals – masks, costumes
- Halloween - pumpkins, ghosts, witches, masks
- Christmas - different styles of Santa Clauses, ornaments, reindeer, elves, angels
- Easter - Whimsical eggs and appealing bunnies

VARIETY OF PAPER MACHE CRAFT IN DIFFERENT PARTS OF INDIA

• In Bihar and Jharkhand, Paper Mache as an art form is used from a long age's. Patna, Hazaribagh, Murhu, Saraikela and Madhubani are well known cities for their traditional styles of Paper Mache work.

• Various decorative articles such as pen stands, envelope holders, paperweights, jewel boxes etc. are made in Delhi with the combination of waste paper and clay.

• In Gujarat numerous products are made from paper mache and Plaster of Paris. Beautifully painted products like Hindu deities, flora and fauna, toys are made here.

• In Madhya Pradesh city named Gwalior is well known for paper mache work. Toys, cartoon images and figures of god and goddesses are made in this city.

• A range of handmade papers in many colors and textures are available in Maharashtra.

• Shantiniketan in Bolpur near Kolkata, West Bengal is considered a pioneer of Paper Mache as an art form in India. A huge range of articles are produced by the artisans here.

- Assam is known for its colorful Paper Mache bags, files and folders, pen stands, etc.
- Odisha is famous for its Paper Mache craft. The artisans collect dry waste paper and cloth of various types and design beautiful products from them. Main product made is masks produced by molding clay and newspaper. Patachitra painting is also made in Odisha. In Patachitra painting, the colors are made from seashells and rocks. Masks of demons and animals are made for use in the local folk and classical dance performances. The figures and other products like dolls, pen stands and lampshades are made in many sizes.
- In Persia and Kashmir, Paper Mache has been used to produce small painted boxes, trays, and cases. The products produced are beautifully finished.
- Using waste paper and clay Rajasthan produces Paper Mache products like Pen stand, Animals, Tea light, Birds tea light, Fruits, Masks, Faces, Photo frames, Coasters, Boxes, Lamp stands, Christmas tree hangings, are available. These products are used in hotels, restaurants and houses for enhancing interior designing.

HISTORY, TRADITION

KASHMIR

Paper mache technique for making decorative objects using paper pulp was adopted in Kashmir in 15th century by King Zain-ul-abiding. In the 14th century Mir Sayyed Ali a Sufi mystic came to Kashmir along with his followers, many of them were craftsmen. These craftsmen used handmade paper pulp from Iran. These artists who were good in handicrafts such as carpet weaving, wood carving settled in Kashmir with their families. To encourage the air govt. of Kashmir has included paper mache as curriculum subjects in schools.

Articles Made:

- Flower pot
- Bangles
- Statue, masks
- Pen stand, paper weight

MADHYA PRADESH

The King of Gwalior liked to decorate his palace known as Moti Mahal with rare pearls and valuable stones. He asked Ram Kumar Thakur's grandfather to make imitation pearls to decorate palace. Sculptor was skilled in craft of paper mache and he brought this craft to next generations. Madhya Pradesh has rich art and craft tradition. Numerous handicraft items with great demand on national and international market are made by the artisans with their well-developed skills. Products of bamboo, jute, cane, wood craft, brass and bronze metal craft, iron craft, and stone craft are usually made using Terracotta and paper-mache work, folk painting and stuffed leather toys. Paper mache is craft existing since long time. The artisans of Gwalior, Bhopal, Ratlam and Ujjain are making the products like vases, flower pots and jewelry boxes, birds, animals, dolls, and statue, other is in show cases. Now these days the jewelry of paper mache is also in trend. (Pandey et. al., 2017)

Articles Made:

Craftsman makes masks of animals, statues of god, goddesses, and birds. Birds appear almost alive, craftsman have brilliant combination of skills in creating realistic form in 3-D and then painting gradations of colors and details of feathers with amazing realism.

BIHAR

In village of Salempur, little girls watched their grandmothers and make decorative items necessary for weddings. These items included the traditional diya, haathi, kohbar and many more things. Subhadra Devi, resident from Salempur was skilled craftswoman and was encouraged to learn and pursue paper mache technique. She carved out interesting traditional forms out of modern paper mache technique and amazingly decorated them with the famous Mithila painting technique. She was honored with State award, Bihar in 1980 and with national award in 1992. A training program was held for the women of Salempur. Subhadra Devi made traditional stories and products for wedding ceremonies through paper mache craft and made it well known as Paper Mache craft of Madhubani. (Khanna Surabhi., 2013)

Articles Made:

Objects made from paper mache are snuff boxes, decorative moldings, masks, boats, lamps, cups, furniture or other objects of utility and home decorations.

ODISHA

Paper mache in Odisha is practiced in Bhubaneswar and Raghurajpur villages.

Articles made: Objects made from the pulp of paper mache are flower pots, statue, bangles, jewelry, pen stand, paper weight, masks and many more.

CONSERVATION PROBLEMS AND TREATMENT:

Paper mache furniture is very difficult to manage as it is prone to the structural damage and the destructive damage to the decoration on it. For cleaning the soft cotton cloth is preferred with the care instructions of not rubbing too harsh. Paper mache furniture is very likely to fade its color when exposed to intense light so it is recommended not to expose it to the sunlight. Humidity is another problem when it comes to the paper mache so exposing to the less humidity is preferred. (D. van der Reyden et.al)

METHODOLOGY

PREPRATION OF MOULD

- Prototype was prepared, and was polished.
- Gel coat was added on the prototype with the help of brush.
- Resin and hardener were applied on the fiber mat.
- Fiber mat was applied on the prototype and male female part was prepared.
- After sun drying male and female part was separated and prototype was taken out.
- With the help of 600 numbers paper (ragmer) dye was made plain.
- Male female part was joined with nut and bolt and paper mache was filled, pressed.
- After 2 days paper mache mould was removed out.
- At last mould was polished.



PROCEDURE FOR MAKING PULP:

- Paper was cut down into small pieces and was dipped into water for 1-2 days.
- It was blended completely and pulp was prepared.
- Pulp was taken out and all the water was removed from that pulp.
- Natural gum of *Acacia* tree, fuller's earth, baking soda, plaster of paris was added in one tenth of the pulp.
- Mixture of all the things was added into the mould.



Blended pulp



Removal of water from pulp



Pulp after removal of water



Gum, fuller's earth and baking soda ready for adding in the pulp

+



Addition of mixture in the mould

CONCLUSION:

In the area of furniture designing for the reference models and for the ostentatiously lofty structures the paper mache modeling is one of the broadly examined and unobjectionable ways of making derivatively realistic full scale mock – ups. Subsequently this could be extremely useful in anticipating the outcome even before investing time and monetary resources in the actual projects.

However with the wide spectral use of contemporary synthetic polymers and materially rich composites, paper mache becomes the less significant value contrary to its wide spread noteworthy role in the past. Regardless it is still in use in the instances where the factors such as ease in prototype construction and low cost are important, which otherwise could be considerable expensive and possibly unable to meet the expectations if not pre-planned properly.

The way of acknowledging the structural essence of project by examining the promising example before even getting into the actual production is a really compelling way of strategically commercialism. Although in the modern times people are diverging towards the modern 3D software's for creating quality representations of projects but creating the real world prototypes as from the paper mache takes it to the next level of understanding the structural design which opens a broad room for the improvement in dimensional and design layouts which in the long run would be a very efficient way from the perspective of commercial strategy.

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