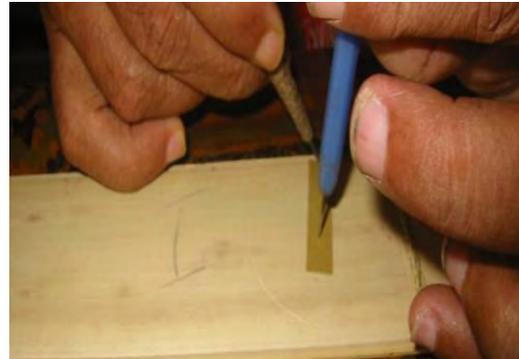


Palm-leaf : the ancient writing medium of Myanmar

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Palm-Leaf

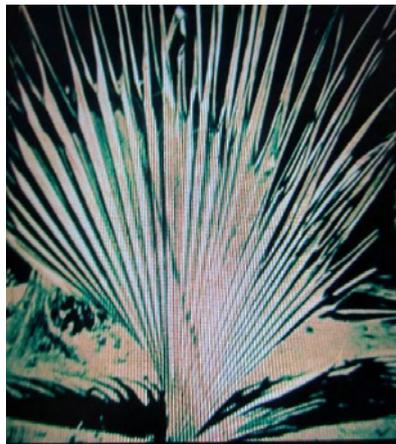
Today paper is the most widely used for writing and printing, as well as for painting. However, before paper was introduced there were several mediums like wooden panels, birch bark, palm-leaf, leather, parchment and so on, which were used for the same purpose. Of these, palm-leaf was probably the most important and the most popular, in almost all South and Southeast Asian countries, including Cambodia, India, Indonesia, Burma, Nepal, Sri Lanka and Thailand.

Writing and Painting Techniques

There are many varieties of palm trees. For writing, however, leaves of two kinds were mainly used. These are the Palmyra palm (*Barassus Flabelifer Linn*) and Talipot palm (*Coryoba Umbraculifera Linn*). Of these two kinds, leaves of the Palmyra palm are rather thick and less flexible. When time flies, these leaves become easily brittle. Insect attack is also more noticeable in them. On the other hand, leaves of the Talipot palm are soft and flexible. They remain flexible for a long period. The earliest manuscripts written on Talipot leaves are mostly found.



Talipot palm or Corypha palm



Talipot Palm Tree

Before palm-leaves could be used for writing or for illustrations, they had to be processed in many steps and the technique is differed from one place to another. In South India, fresh palm-leaves were first dried in shade and then oil was applied to them. In Sri Lanka, fresh leaves were boiled in water or dipped in lime water and then dried in shade.

In Myanmar, fresh palm-leaves were fermented in a big jar for five to seven days. When the colour of leaves changed into yellow, those were washed with fresh water and then dried in shade. In Thailand, after the removal of their stiff ribs, they were cut to uniform size and placed between two wooden boards forming a bundle and then, kept in a special kiln. It was noticed that a kind of black oil coming out from the leaves. This black deposit was removed with cloth and then the leaves were made smooth with hot sand.

Colouring the leaf before painting or writing was not a common practice in India, Nepal or Sri Lanka, but in Thailand. The leaf was often coloured or decorated before it was written upon. In Myanmar, a coat of lacquer was applied to the leaf and then written upon it with golden ink just like in kammavaca.

There were two major techniques for writing or illustrating on palm-leaf, namely:

- (i). by making incisions with a pointed stylus.
- (ii). by writing with a pen or brush.



A scholar incising letters on palm-leaf

By using an iron stylus, writing and illustrations were incised on the leaf. In this stage, however, writing was not legible. A black paint was prepared by mixing lamp-soot or charcoal powder with oil. It was applied on the surface of the palm-leaf. The excess paint was wiped off with cloth. By this process the black paint was deposited in the incisions and remains there. In this manner the written words become visible.

For writing in ink or painting, a pen or brush was used. The writing was done on paper. In this case the ink or the paint remains on the surface of the leaf because the palm-leaf is less absorbent than that of normal paper.

For storage, palm-leaves were kept between two wooden boards. Holes were pierced into every palm-leaf. A cord or bamboo stick was passed through the hole so that leaves were kept static in position. Very often these wooden boards themselves were painted or decorated with lacquer or inlaid designs.

Deterioration and Treatment

There are various types of deterioration defects that develop in palm-leaf manuscripts. The major defects are:

- (i). Stains and spots
- (ii). Dis-colouration on the surface
- (iii). Damage caused by insects
- (iv). Damage due to fungus
- (v). Loss of flexibility
- (vi). Splitting various layers of the palm-leaf.

For removal of stains and spots from incised palm-leaves, water can be used. For the surface of written manuscripts, a non-aqueous solvent like ethyl alcohol, acetone etc. has to be used. Trichloroethane has also been recommended for cleaning palm-leaf manuscripts.

Discolouration of the palm-leaf could be caused by various reasons, like oxidation, accumulation of dirt or frequent application of oil. Incised leaves can be cleaned by applying dilute detergent solution. For removal of oil, a mixture of acetone and ethyl alcohol is recommended.

Insects are probably the greatest enemies of palm-leaves. A detailed survey of insects living on palm-leaves indicates that the only insects feeding on them is *gastrallus indicus*. One of the remedies available for the control of insects is fumigation with insecticides. It is reported that fumigation of palm-leaf bundles is best achieved with paradichlorobenzene at 65% relative humidity.

Normally, fungus is not found in palm-leaves. However, if it is noticed, it can be cleaned off with swabs moistened with ethyl alcohol. Fumigation with thymol is also helpful.

Due to age, palm -leaves become fragile and brittle. Old leaves can easily break into pieces. The edges of a palm-leaf become so weak that it easily crumbles by a slightest touch. The main cause for the loss of flexibility is breaking down of the structure of the leaf.

In order to impart to the leaf, the original suppleness/flexibility and also an insecticidal proper, oil like citronella oil, camphor oil or lemon grass oil is applied onto its surface with a piece of soft cotton cloth. The excess oil must be wiped off with a dry piece of cloth.

Often, there are tiny holes eaten by insect in palm-leaves. To repair these holes, fibres of mulberry tissue paper can be used. An adhesive like diluted Mowicoll is mixed with fibres. Big holes or broken edges can be repaired by using materials like thick Japanese tissue paper or natural wood paper veneer or unused palm-leaf.

Another defect often noticed in palm-leaves is the cleavage of the surface layer from the main body of the leaf. This type of cleavage is due to the breaking of the bond between various layers. Sometimes, the surface layer of one leaf gets stuck to the adjoining leaf. For repairing the separated layers, an acrylic emulsion adhesive is used. After the adhesive is applied with a thin brush and the separated layer becomes fixed back.

The fading of writing on palm-leaf is another very common defect. In the case of incised leaves, fading is found because of the loss of the ink or carbon black filled in the incisions. By the application of carbon black mixed with lemon grass oil, the written words can be visible again.

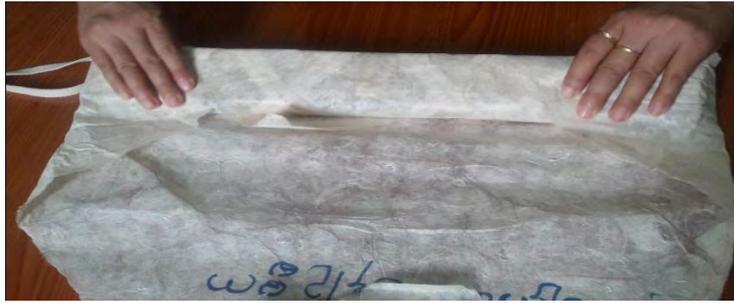
In the case of surface written or surface painted manuscripts, illegibility occurs because of the flaking of ink or paint. The leaf surface is not absorbent and therefore, the paint or the ink flakes off easily. Nothing can be done to restore this type of loss. However, for preventing the paint and the ink from flaking off, a protective coating of polyvinyl acetate solution or acrylic lacquer can be helpful.

Storage

For storing palm-leaf manuscripts for longevity, the best way is to keep the whole bundle of palm-leaves between two wooden boards in traditional way. If manuscripts are kept tightly bound, it will do not disorganized easily. Then, to prevent from accumulation of dust, each bundle should be wrapped in a piece of acid-free hand-made paper. For longevity, an insecticide chemical like Paradichlorobenzene should be placed in storage cupboards.



The whole bundle of palm-leaf is kept between two wooden boards



Palm-leaf bundle is being wrapped with a piece of hand-made paper



Palm-leaf bundles are stored in cupboard

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