

Resurrection of Papyrus as a
National Heritage & The Harvest
of 35 years experience with
Papyrus

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Description of the Plant

Papyrus is a perennial non-woody aquatic plant growing to a height of up to 12 feet in the shallows of rivers and lakes in many parts of Africa.

The papyrus stalk has no nodes, and has only few short leaves covering a small portion of the stalk immediately above the rhizome (fig.1).

The Ancient Egyptians put the papyrus to many uses, the most important of which was to make papyrus itself, the writing material, the vehicle of thought. Our word "paper" has its origin from the Greek name of the plant "Papyros".

Writing on Papyrus sheets enabled the Egyptians as well as the different nations who used it to put on record almost everything connected with their daily life: literature, science, arts, religious beliefs, traditions, history...etc. Papyrus sheets being of a durable nature were able to convey to us such large information about the past. Papyrus was thus able to play an important role in conserving the history of human civilization at large and of Egypt in particular.

Though the Ancient Egyptians used very simple and primitive tools and processes in the manufacture of papyrus sheets, yet it was discovered that these sheets contained most of the essential characteristics in the best quality of present day paper.

Moreover, it has already been proved that the old papyrus sheets stood the severest tests of time and elements for more than 5000 years.

The Importance of Papyrus in Egypt's Export

Papyrus used to top the list of Egypt's exports. It ranked second only to linen textiles which came first in the list. In those days currency was not yet known and trade exchange was based on the barter system, thus papyrus sheets being light and of big value played the role of currency in Egypt's foreign trade. The Egyptian rulers, realizing the importance of this role proclaimed papyrus sheets making and trade as a state monopoly. This explains why the Ancient Egyptians who took great care in recording all matters connected with their daily life activities, did not leave any reference connected with the process of papyrus sheet-making.

How Papyrus Disappeared From Egypt

The Egyptians used the papyrus to produce the writing material for more than four thousand years. After the Egyptian dynasties the Greeks came to rule Egypt for more than three hundred years. After Cleopatra the last queen of the Ptolemies, Egypt turned to be a Roman colony for some 600 years. During this period papyrus continued to be manufactured and used by the same methods adopted by the Ancient Egyptians.

Though papyrus was exported to practically all the nations of the Ancient World, however, Egypt monopolised papyrus and remained to be the sole producer. In order to break the Egyptian monopoly on papyrus, other nations tried to produce different writing materials to replace it such as wax and clay tablets, lead sheets, then parchment. Though these materials met with limited success in replacing papyrus in the countries where they were devised, however, they were never able to dethrone papyrus in its original

country Egypt.

Egypt came under the Arab rule since the middle of the seventh century A.D. However, this did not affect papyrus manufacture which continued flourishing until the newly invented Chinese paper was introduced around the beginning of the tenth century A.D. On trying this (new) method, the Egyptians discovered that the quality of the newly introduced paper, though far from having the superior qualities of papyrus, yet it was much cheaper and more economic to produce. As a result, the Egyptians gradually abandoned papyrus in favour of this paper and eventually stopped growing papyrus. The papyrus started to disappear gradually from the panorama of Egypt until it became completely extinct some few centuries later.

When the author started his research work on papyrus in 1962, his main concern was to find the papyrus plant which no longer existed in Egypt. He had to go as far south as the Upper Reaches of the Nile in the Sudan where it grows in large areas, and from there he was able to bring some roots which enabled him to start a small plantation on the banks of the Nile near Cairo.

The Author's Process of Sheet Making

This process has been developed over many years of research and hard labour. In harvesting papyrus care should be taken not to bend or bruise the stems as a bruised or broken stem is no longer useful for sheet making.

Out of the whole stem of average size, only two feet, cut from the lowest part of the stalk are used in sheet making in the following procedure:-

- 1- The rind is first uncovered by means of a sharp knife.
- 2- The uncovered pith is then cut with a knife in parallel thin strips of even thickness in the longitudinal direction of the

stalk.

During the harvest season i.e. the season where papyrus reaches its full growth, June - September (in Egypt), the freshly cut papyrus strips could be used directly for sheet making.

In order to prolong the manufacturing season beyond the harvest season, the author developed his own way of making papyrus sheets out of dried papyrus strips. The method consists of allowing the freshly sliced strips to dry by laying them separately on a shelf exposed to a dry warm atmosphere. The dried strips could be safely stored for a period up to a few months until used later.

3- The strips are immersed in a tank full of fresh water for a period of 2-3 days. This allows all soluble material, that the plant contains like sugar, starch, and other organic materials to dissolve in the water.

4- The strips undergo a preliminary hammering with a mallet or rolling with a heavy wooden roller against a flat block of wood (fig. 2) to get rid of all soluble material and to break its cellular tissues, then they are immersed in a second tank for another 24 hours after which rolling is repeated again.

5- After the second rolling the strips become soft and tender, and ready to be used in papyrus manufacture.

6- The standard size of the sheet produced at Dr. Ragab Papyrus Institute is 30 cm wide by 40 cm long, which dimensions correspond to nearly the largest sheet made by the Ancient Egyptians. Then, the wet strips are laid on a cutting board where some of them are trimmed to 30 cm and others to 40 cm.

7- A papyrus sheet is formed by the following procedure:

A piece of cotton material is laid on top of a rectangular sheet of dry felt and both are put on the surface of the working table. This first layer of the papyrus sheet is started by laying a 40cm strip at the top of the cotton sheet in the horizontal direction,

taking good care to lay the second strip parallel to the first one allowing a small overlap at the edges. The rest of the horizontal strips are laid in the same way until the required breadth of the sheet (30 cm) is reached.(fig. 3),

8- The second layer is started by laying 30 cm strips cross-wise starting from the right end of the sheet and using the same system of overlap until the extreme left end of the sheet is reached, forming a papyrus sheet.

Then another piece of cotton cloth is laid on top of the finished sheet, and another piece of felt is laid on top of the cotton cloth to absorb the water from the other side of the sheet.

9- Then the formed sheet is brought into a hand screw press (fig. 4). With the pressure firmly applied, the water lurking in the wet strips is squeezed out and comes to be absorbed by the dry felt.

10- After nearly 2 hours the press is opened and the wet felt is changed by dry one without removing the overlying cotton. This operation is repeated several times until the papyrus sheet is completely dry, when we strip the overlying felt.

It is really amazing that the Ancient Egyptians with such primitive and hand methods were able to produce this writing material nearly 5000 years ago.

However, if we compare this primitive writing material with modern paper produced by the most sophisticated modern machines, we come easily to the conclusion that the papyrus still boast good characteristics, for the following reasons:

- a- Papyrus sheet has far better mechanical strength than any modern paper of the same weight.
- b- Papyrus could be written upon with any kind of ink without blotting on the surface and without the ink being seen from the other side of the sheet.

It could be easily printed upon, even the smallest characters could be seen very distinctly.

Papyrus was tried in the typing machine and silk screening with great success.

We can draw and paint on it and this paper accepts all sorts of printing material. It is very rare to have all these characteristics combined in one single brand of modern paper.

On top of that we are quite certain that papyrus did survive in the tombs of the Egyptians for more than 5000 years. It is doubtful whether any type of modern paper would last that long.