**Introduction**

Of all natural disasters that can happen to paper objects, the most frequent ones are those caused by water.

When the Arno river overflowed on November the 4th, 1966, its water carried with it a momentum for growth in the field of conservation. Over two million books and documents and countless works of art were afflicted by floodwater that contained debris, mud, and oil from ruptured oil tanks.

Paper has hygroscopic characteristics of water absorption. Paper used up to the middle of the nineteenth century has a much greater ability to absorb water due to the production process where large amounts of water were used during its production. For example, books from that time will absorb up to 30% more water than their weight. Therefore, it is important to have knowledge of all the drying methods of wet or damp books and documents, and of the criteria for selecting the appropriate method in the given conditions.

**Condition of objects and selection by damage degree**

This decision is related to the amount of material damaged by water as it is wet, dirty and infected. Taking into account the variety of materials, each material requires handling in accordance with its characteristics. Accordingly, the features of each damaged facility must be carefully examined so the most appropriate method of drying would be determined. In relation to the damage of the collection, conservation priorities should be set for a large quantity of material. It is necessary to select objects which are for the write-off and those which are in require for conservation (replacement or binding).

Books soaked with water swells and sheets wrinkle, and mutually stick together. In addition to the physical deformation of the book, the possible damage caused by the influence of water is the dissolution of the pigment and ink in which it is written (if the ink is water-soluble), spreading and dissolution of valuable seals in it. After wetting, the paper is very sensitive to microbiological infections. Although bacteria and fungi are found in the same material used in making paper and books, we find them in very small quantities in between dust particles. Spores of microorganisms, most commonly mold, require the following conditions for their reproduction: moisture, a certain temperature and nutrient base. While the first two conditions (moisture and temperature) are suitable for their reproduction in most cases, the third condition (nutrient basis) is crucial, since fungus without chlorophyll to convert carbon dioxide to carbohydrates requires the calcium to be taken directly from organic substances.

Unfortunately, a lot of nutrients are found in paper cellulose, skin proteins and parchment, and various adhesives used in book binding. At temperatures between 18° and 30°C and relative humidity above 65%, it is highly likely that the mold will appear in a wet book within 48-72 hours after exposure. The mold secretes the enzymes by which it breaks down, changes and weakens the organic materials, and the poisoning substances formed as a metabolite product of mold produce irreversible stains on paper, canvas, and skin of the book. In order to prevent mechanical deformation of books and paper, loss of written text and development of microorganisms, the book should be treated quickly and appropriately after being moistened.

**Mass**

Under the mass drying techniques there are:
- Air-drying
- Drying at high temperature
- Dehumidification
- Vacuum drying
- Blast freezing

The most effective method is freeze drying. Freeze drying is a process which can be used to preserve and recover valuable documents damaged by water. This method implies freezing materials under the temperature of -20°C and then placed in a vacuum chamber. Vacuuming stimulates the frozen water to move and it comes out of the material in a gaseous state. This method eliminates the liquid phase of water and thus minimizes the stress caused by moisture evaporation and drying differences.

**Individual**

Separation of attached sheets:
- Primarily, attached sheets are separated by dry procedures with various types of spatula (e.g. Teflon, bamboo...)
  - It is not possible to separate sheets by dry methods, water, and water vapor is the most used way of separation. Different ways of using water are: watering, wetting in the chamber, wetting with an ultrasonic humidifier or spraying with a fine sprayer.
  - Methylcellulose glue is also used for its smoothness and not much moisture, which makes it easier to use the spatula when separating sheets.
- Also, the enzymatic properties to catalyze the exact reactions, allows successful separation of the substrate from the source, without changing the structure of the source list.

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