ANCIENT PHOTOGRAPHS AND PHOTO ALBUMS. RESTORATION AND CONSERVATION.

The main techniques of printing

The restoration of photographs is a recent discipline.

Before 1880's the photographs were manifactured by hand.

Each ancient photograph is a *unicum*.

It's fundamental to identify the technique used to produce the photographs in order to elaborate a restoration project.



The main characteristic that distinguishes the photographs is the number of layers used in production:

- one layer procedure;
- two layers procedure;
- three layers procedure.

One layer procedure

The image is in the fibers of paper. When we observe the image closely or under microscope, it's possible to distinguish the fibers. An example is the salted paper print.





Salted paper print.



Two layers procedure

The layers are:

- paper;
- image.

An example is albumen print. The image is in the layer of albumen.



Albumen print.



Three layers procedure

In this procedure the layers are:

- paper;
- barium sulfate;
- image.

In the last layer there is a binding agent which can be collodion or gelatin.





Aristotype gelatin silver chloride.

The aristotypes are used between the years 1884 and 1930.

They are then replaced by silver bromide gelatin print obtained through chemical development.

The silver salt is bromide which reacts faster than cloride.

The time for exposure and printing are reduced.

The deterioration of photographic material and photo albums

The deterioration is due to two reasons:

- internal factors,
- external factors.

The internal factors refer to the types of materials which compose the works, to the manufacturing processes and its inadequate use of chemical products.

In addition to the image's characteristics, it's necessary to consider the paper support.

Albumen print glued to a deteriorated cardboad.



The external factors are relative to the environment in which the works are stored:

- climate;
- light;
- air pollution;
- dust;
- human factor;
- incorrect restoration.

Oxidizing in a aristotype gelatin print.



Craqueleres and gaps in an albumen print.



Silver mirroring in a salted paper print.



Discoloration and scratches in a collodion print.



It's possible to distinguish:

- mechanical deterioration;

- chemical deterioration;

- biological deterioration.

Mechanical deterioration: gaps, tears and folds in a gelatin print.



Chemical deterioration: turning yellow and discoloration in an albumen print.



Biological deterioration: insect tracks in a salted paper print.



The deterioration of photo albums is due to internal and external factors.

They are composed of different materials and they have the characteristics and the problems of paper materials, especially of books.

Photo vertical album with cover in wood, velvet and metal.





The weight of the photo album and the album collection inside can cause the weakening of the bookbinding.

The damages can be:

- detachment of sections or loose sheets;
- separation or breaking of the sewing thread;
- separation or breaking of the materials which cover the back;
- breaking of canvas strings and of nerves on the back.

Photo album with ivory cover. On the back the ivory plates have fallen off.



The photographs and the album restoration

Cleaning:

- dry cleaning (dusting with a soft brush; erasing with a suitable eraser);

- wet cleaning (tamponing with a water-alcohol mixture).

Restoration:

- to restore holes, tears and gaps with Japanese tissue and methylcellulose.

Before restoration.



After restoration.



Before and after restoration.



The conservation

The technique used in the manifacturing is important also for conservation.

It's necessary to put the works into envelopes or boxes which passed the suitability test for photographic material conservation (P.A.T.)

There are different kinds of containers:

- white paper envelopes;
- plastic envelopes;
- one sheet of polyester sealed to a paper or a cardboard;
- passepartout;
- boxes.

The conservation environment must be carefully controlled.

General parameters:

- Temperature: 18°-20° C;
- relative humidity: 30-50%;
- lighting: 150 Lux.

The works must be regularly checked by a qualified personnel.

The material is digitized to store the works in a permanent way and to allow the consultation without direct contact.