6

Technical Bulletin

November 1980

Canadian Conservation Institute

National Museums of Canada

The Care of Black and White Photographic Collections: Identification of Processes

Siegfried Rempel

The Care of Black and White Photographic Collections: *Identification of Processes*

by Siegfried Rempel

CCI TECHNICAL BULLETINS

1. *Relative Humidity: Its Importance, Measurement and Control in Museums*
by K.J. Macleod

2. *Museum Lighting*
by K.J. Macleod

3. *Recommended Environmental Monitors for Museums, Archives and Art Galleries*
by Raymond H. Lafontaine

4. *Care of Musical Instruments in Canadian Collections*
by R.L. Barclay

5. *Environmental Norms for Canadian Museums, Art Galleries and Archives*
by Raymond H. Lafontaine

6. *The Care of Black and White Photographic Collections: Identification of Processes*
by Siegfried Rempel

7. *Fluorescent Lamps*
by Raymond H. Lafontaine
and Patricia A. Wood

8. *The Care of Wooden Objects*
by R. Barclay, R. Eames and A. Todd

9. *The Care of Black and White Photographic Collections: Cleaning and Stabilization*
by Siegfried Rempel

(T.B.'s 10-12 in progress)

For free Technical Bulletins, fill out enclosed detachable post card and return to CCI.

Canadian Conservation Institute (CCI)
National Museums of Canada

Technical Bulletin No. 6

The Care of Black and White Photographic Collections: Identification of Processes

by
Siegfried Rempel

Editor: Janet Denton

ISSN 0706-4152
ISBN 0-662-50407-0
DSS Cat. No. NM 95-55/6-1980
First printing, November 1979
Second printing, November 1980

Technical Bulletins are published at intervals by the Canadian Conservation Institute in Ottawa as a means of disseminating information on current techniques and principles of conservation of use to curators and conservators of Canada's cultural artifacts. The authors welcome comments and queries.

ABSTRACT

A procedure for the identification of black and white photographic artifacts is presented. The procedure includes discussion of selected spot-tests, thereby minimizing the problems associated with the identification of these types of artifacts.

AUTHOR

Photo by James Stark

Siegfried Rempel is a Conservation Scientist in the Conservation Processes Research Section of the Canadian Conservation Institute. He graduated from Carleton University with a B.Sc degree in 1973 and joined the Canadian Conservation Institute in 1975.

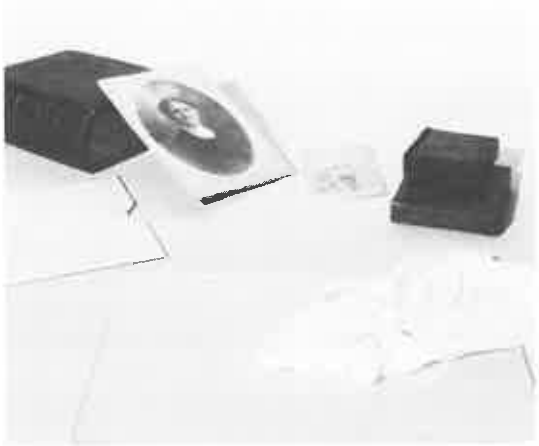
Illustrations by: Bob Barclay
Photographs by: Siegfried Rempel
Word Processing: Karen Kluz

TABLE OF CONTENTS

I. INTRODUCTION

A prerequisite to handling and caring for a photographic collection is the identification of the artifacts and materials comprising them. The correct identification of a photographic process will be based on the material the support is composed of and will allow specific recommendations to be made for each type of artifact. This in turn will ensure that each photograph can be given the appropriate treatment during cleaning, filing and storage.

The aim of this technical bulletin is to introduce non-specialists to the techniques of proper handling and identification of the photographic artifacts under their care. Future bulletins dealing with photographic materials will make use of the experience gained through this issue, particularly for dealing with the cleaning, maintenance and storage of the collection.

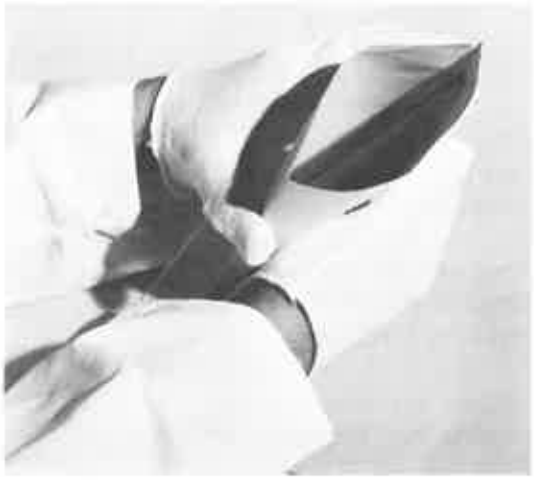


II. HANDLING INSTRUCTIONS

In order to identify, clean, or classify the artifact, it is necessary to handle and examine it. The following points should be observed with respect to the manual handling of photographic artifacts.

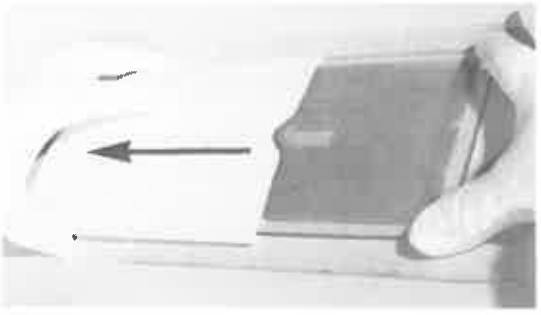
Choose an area where no other photographic artifacts are present, other than those to be examined. A few thicknesses of clean, buff-coloured paper form a good surface on which to work. Several large glass sheets, 8" x 10" or larger, are necessary to allow the particular items being examined to sit upon a rigid surface. For the handling itself, disposable cotton gloves should be used. Hands should be free of lotions and creams, since contact of these oily materials with the photographic artifact could result in irreversible damage.

To examine an artifact, it must be removed from its enclosure, usually a paper envelope. First pinch the top and bottom sides of the envelope near the open end with the left hand while supporting the bulk of the envelope with the right; then observe the contents, in particular the surfaces.



This observation will indicate the nature of the support material and may allow the artifact to be oriented emulsion side up prior to removing the envelope. If the contents are glass and do not appear to be uniformly rigid, the plate may be broken or cracked. Any plate that is suspected of being damaged should be placed on a flat surface and set aside for examination by a trained conservator. **Do not attempt to examine or handle these items.**

Once the item has been transferred onto the sheet of glass, slide the envelope away from the artifact with the left hand while holding the photograph's edge with the right hand.

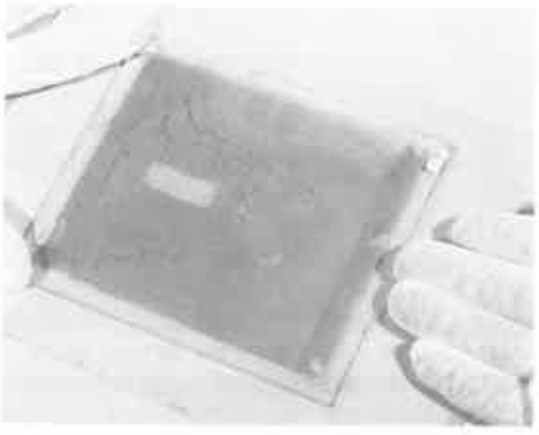


Do not force the separation of the two if resistance is encountered. Artifacts which will not allow themselves to be removed from their enclosures should be left. Damage inflicted by forcing the removal of an artifact is usually not repairable.

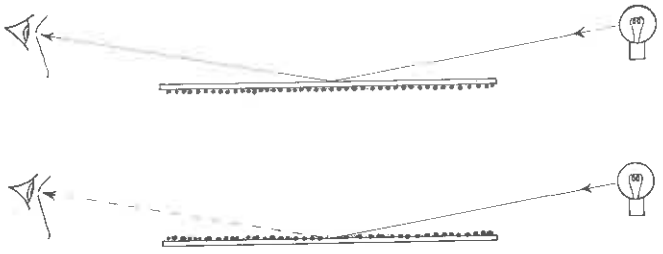
At this stage, the emulsion side of the artifact must be identified. It is the matt or semi-matt surface of glass and plastic materials when viewed in an oblique light. The emulsion side of metallic and paper supports are less difficult to identify since they carry both the emulsion and the image on the same surface.

For glass support materials, it may be necessary to lift or turn the artifact over to make an observation of both surfaces. The following steps should ensure that the surface is not damaged during this operation. Place the fingers of the left hand against the left side of the artifact to minimize its movement. The opposite or right side should then be lifted with the fingers of the right hand.

The photograph should always be handled with disposable cotton gloves and held only by the edges and non-image areas.



With the photograph hand-held, it can be manipulated back and forth to allow observation of the light striking the surface. The duller matt side is the emulsion side and should always be facing the operator during examination and spot-testing.



Photographs contained in ornamental cases or in albums should not be removed for identification. It is normally possible to identify this type of artifact without removing it. For example, case photographs were limited to two types of support, metal and glass. Of these, three different artifacts exist: one silver-plated copper, one black-lacquered iron and one on a glass support.

I. THE IDENTIFICATION KEYS

A number of procedures exist for the identification of photographic materials and processes. However, because it may not always be possible for the non-specialist to recognize either the materials or processes, a set of descriptive keys has been devised that will aid in identifying photographic artifacts.

The keys outlined in this bulletin are divided into four main groups, each based on the composition of the support material: metal supports, glass supports, plastic supports and paper supports. Each main group is followed by a list of descriptions which lead the custodian through a number of observable features. If present, these features will allow for a positive identification of the photographic artifact. If absent, the custodian is directed to the next set of identifiers. Through this process of elimination, the incorrect possibilities are discarded and the recognition of diagnostic features points to the correct identification of the artifact.

This approach should allow less experienced individuals to become competent in the identification of photographic artifacts and, as proficiency increases, the reliance on the key will probably be reduced or even eliminated.

These keys have been designed to cover most of the common photographic artifacts found in collections, as well as a few which will not normally be found except in unusual situations.

It is conceivable that an artifact representing a particular process may not be identifiable. In such cases, it may be necessary to obtain advice from a specialist.

IV. SPOT-TESTS

The spot-test is a valuable aid in the identification process. Chemical spot-tests must, however, be utilized with extreme care and **only** as one of the **final** identification steps after the other visual examinations have been concluded.

The following testing sequence should be used when applying a solvent to an artifact:

1. Always spot-test with water first; if it is necessary to make an alcohol test, it should always be second.

2. Identify the emulsion side which on most supports is generally more matt (less reflective) than the support side. Often the emulsion shows a slight relief when viewed at a very oblique angle or, in the case of a hand-coated emulsion, it may have flow ridges along the edge of the glass plate. While viewing the emulsion under oblique daylight, tilt the artifact back and forth.

3. **Apply one drop of solvent to a non-significant, non-image, edge area** on the emulsion side. The application of the solvent is best undertaken with absorbent points (micro swabs) dipped into the solvent and lightly touched to the edge of the bottle, leaving just one drop on the tip, before placing onto the chosen point on the artifact.

4. The drop of solvent should be observed for a few minutes or until a physical change is noted. Once this observation is completed, the surplus solvent should be carefully blotted with an absorbent blotting paper.

Press the blotting paper down over the spot but **do not rub the surface** with it.

5. After blotting, the area of the spot-test should again be observed. An oblique viewing angle may show a swelling or relief between the wet and dry areas.

Again the artifact will require a tilting back and forth during examination to insure proper observation. The blotter should be examined as well to check the solubility of the emulsion. The transfer of the image and emulsion to the blotter paper would be an indication of a soluble emulsion.

The application of water and alcohol are the two most significant spot-tests conducted in this bulletin. They depend either upon the swelling action by the absorption of distilled water into the emulsion, or the solvent action of ethyl alcohol on the emulsion.

The dissolution of the emulsion by alcohol is a destructive test and as such must not be undertaken **unless necessary.** If this test is to be used, it must be very carefully executed.

The results of these two spot-tests will allow the worker to determine the type of photographic emulsion. For example, a swelling and partial absorption of the water by the emulsion during the water test identifies a colloid emulsion, probably gelatin. The alcohol test on this same photograph would be negative; that is, it would not dissolve or change the appearance of the image.

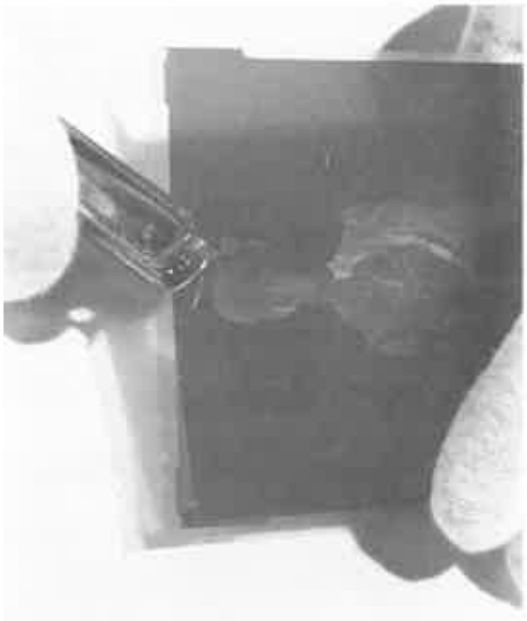
The opposite takes place on collodion emulsions. Here, the water test gives a negative result while the alcohol test reacts by dissolving the emulsion.

The situation where both spot-tests are negative is usually characteristic of an albumen emulsion. In this case, the alcohol "wets" the emulsion without dissolving the image and, after evaporating, leaves no indication of its presence. Conversely, the water droplet beads on the surface.

The application of organic solvents to artifacts should be restricted to the use of ethyl alcohol and this should be applied only after a negative water spot-test has been obtained. Alcohol sensitive emulsions such as collodion will require extreme care during testing lest the image be destroyed. The dissolution of the image can be recognized by the formation of a **solvent front** in which the emulsion, when wet with solvent, appears to "swim", the image losing its pictorial image quality.

It is imperative to remember that spot-tests are conducted only when necessary. If a process has been identified by non-chemical means, spot-testing should be avoided.

An additional spot-test which is utilized in **Key C, Plastic Supports,** requires a small punching to be taken from the transparent part of the base support of the artifact. Most plastic-based materials have a margin or edge area from which a piece of the base can be physically detached for testing without causing any loss of information in the photograph itself.



This flotation test is a relative measure of the densities of the three different types of plastic support. A punching sampled from an edge with a small aperture punch is dropped into a bottle of trichloroethylene and trichloroethane*, which separates the three supports in differing ways. (See Illustration 1.)

* This solvent requires a well-ventilated area. Its formulation is found on page 32.

Add sample punching to trichloroethylene and trichloroethane mixture and invert test tube:

*Acetate-based** punching ...*

immediately floats to the top;

Polyester-based punching ...

stays in the solution at various levels, neither settling on the bottom nor floating to the top during a ten-second test period;

Nitrate-based punching ...

immediately sinks to the bottom.

ILLUSTRATION 1

A second test involves cutting off a thin sliver of the base along an edge and burning it. This kind of testing is not necessary unless the material is not identifiable by any other means.

The burning of nitrate film must be conducted in a well-ventilated room away from other nitrate and photographic materials. This burning test should **not** be conducted unless necessary, because cellulose nitrate film is self-sustaining once ignited. As it burns, this material generates its own supply of oxygen and **it cannot be extinguished until it has burnt itself out.** Machine-made nitrate sheet film will have "NITRATE" embossed on the edges but roll film made of this base will not. Cellulose acetate films will be marked with the word "SAFETY" and may sustain a flame, but they will not contribute to the combustion process. Polyester film may have "ESTAR" embossed on the film edge, and the subject content, which will be contemporary, should help in differentiating it from the nitrate and acetate materials. Polyester film burns only with difficulty and will not sustain a flame. As with the alcohol spot-test, the burning of nitrate material should only be carried out if **absolutely necessary.**

** Acetate-based materials have been formulated from a number of mixtures since their initial use as a support. The contemporary triacetate film base will float to the top while the earlier acetate will tend to stay in the solution and therefore appear to be a polyester base. This point is easily clarified by examination of either the margin areas of the support where the words "safety" or "Estar" will appear, or by examination of the subject content itself.

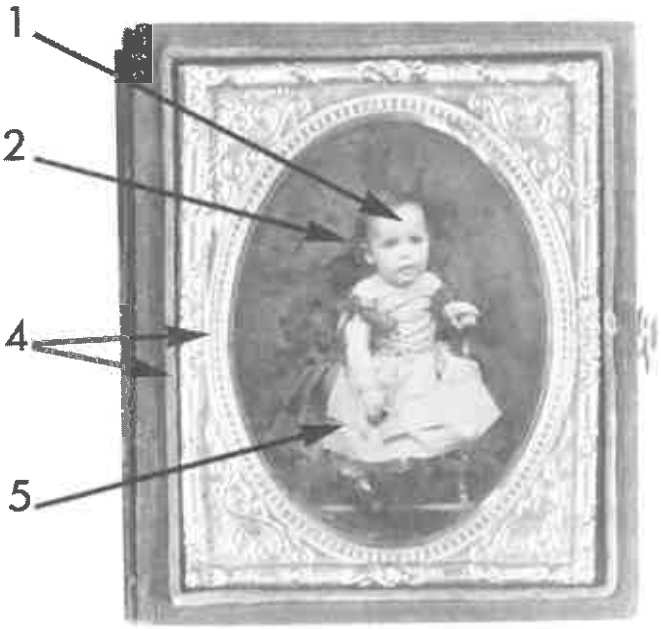
V. TABLE OF CONTENTS FOR KEYS

VI. AN EXAMPLE UTILIZING THE IDENTIFICATION KEYS

The following example is included to give the custodian an opportunity to implement the key. A list of observed characteristics is made and, by means of a series of questions, the sequential flow through the key is illustrated.

Characteristics Observed, Random Order

(1) Image is brown-black with cream highlights.
(2) The image is a positive but shows some transparent areas, giving the impression of a negative image in these areas.
(3) The image support appears to be glass.
(4) The photograph is contained in an ornamental case behind glass with a metal frame and metal mat.
(5) In the areas in which the image is a positive, it is also opaque.



Question: What is the support?

Observation: It appears to be glass; go to Key B, Glass Supports p. 11.

Question: Is the image largely positive or negative?

Observation: Most areas are positive but a few areas are not; go to 3 of Key B.

Question: Is the image mostly opaque or transparent?

Observation: **Mostly** opaque, but a few areas are not; go to 9 of Key B.

Question: Is the image a positive on glass with an opaque-lacquered base?

Observation: The image is in an ornamental case under glass with a metal mat and appears to have a flaking, black-lacquered backing, but cannot be examined; go to 10 of Key B and read the additional identifiers listed.

Question: Are most of these additional identifiers present in your sample?

Observation: Yes.

The artifact has been identified as an Ambrotype. The associated information should aid in confirming the identification.

The artifact - if encased, as was the situation with this example - should not be removed. Identification can usually be made without having to remove the photograph from the case, therefore reducing the possibility of damage.

If you become bogged down or miss a step, then proceed with a new item, returning at a later time to the problem photograph.

This key does not contain all the examples of black and white technology and so, should an item not be identifiable after several attempts, a professional opinion should be sought.

Note: Time periods given for photographic processes are generally accurate. However, dates for use of a particular process may extend earlier or later in different geographical areas.

KEY A
METAL SUPPORTS

1. The support appears to be of metal.....2

2. EITHER the metallic support is of silver-plated copper.....3

   OR the metallic support is of brown-lacquered iron.....4

3. The metallic support appears to be silver-plated copper and the image is alternately a negative or a positive depending on the viewing angle and the position at which the photograph is held.

DAGUERREOTYPE
1839-1860

- a metal support of copper silvered on one side and supporting the image on this same side;
- the image colour is black on a highly-polished silver surface;
- the image, when examined under a hand lens (10X), shows a very fine image structure situated on top of the silvered surface and buffing scratches;
- the image tone before 1842 was silver; after 1841, a golden-brown tone;
- the image was often hand-coloured;
- the image and plate surface are often tarnished with a blue-black pigmentation from the plate edge inwards;
- the artifacts are often contained under glass in an ornamental case with a brass frame and metal mat.

4. The metallic support appears to be of a brown-lacquered iron plate and the image colour is brown-black in the shadows and a cream colour in the highlights when viewed by reflected light.

TINTYPE, FERROTYPE OR MELAINOTYPE 1854-1930's

- a metallic sheet of brown-lacquered iron;
- the plate is flexible and shows surface dents;
- the image colour is brown-black with cream highlights;
- the image surface at the edges often shows flow lines due to manual emulsion application;
- they are found in albums and in ornamental cases under glass with a brass mat and frame;
- the image was often hand-coloured;
- it is attracted to a magnet.

KEY B
GLASS SUPPORTS

1. The support appears to be of glass.....2

    2. EITHER the glass support has a positive image.....3

        OR the glass support has a negative image.....14

3. EITHER the positive image on the glass support is transparent.....4

    OR the positive image on the glass support is opaque.....9

        4. EITHER the water spot-test is negative followed by a positive alcohol test.....5

            OR the water spot-test is positive followed by a negative alcohol test.....6

5. The image colour is brown-black in the shadows and has cream-coloured highlights by reflected light, and the image is grey-black by transmitted light.

COLLODION TRANSPARENCY 1851-1900's

- a transparent glass support;
- reflected light shows cream highlights and brown-black shadows;
- -often found as a lantern slide or a stereo transparency.

6. EITHER the image colour is neutral black by both transmitted and reflected light.....7

OR the image colour is of some other colour and dark by reflected light.....8

7. The image colour is neutral black by both transmitted and reflected light.

GELATIN TRANSPARENCY 1880's-PRESENT

- a transparent glass support;
- image colour is a neutral black but may occur as other colours.

8. The image colour is often sepia and dark by reflected light.

WOODBURYTYPE 1865-1890's

OR CARBON TRANSFER 1864-1930's

- a relief image which may be apparent without applying a water spot-test;
- it is a pigment process and will not show fading characteristics.

9. EITHER the positive image is on an opaque glass support with a dark-coloured or black-lacquered back.....10

OR the positive image is only on an opaque glass support.....11

10. The image is on an opaque glass support with a lacquered back.

AMBROTYPE
1851-1880

- glass support with emulsion coated by hand;
- early examples have black-lacquered backs which often show flaking;
- later examples are on dark, rose-coloured glass;
- image colour by reflected light is brown-black in the shadows and cream in the highlights;
- image colour by transmitted light (once backing has been removed) is grey-black;
- the image was often hand-coloured;
- the emulsion at the plate edges often shows flow lines;
- usually mounted in an ornamental case with a brass metal frame and metal mat under glass.

11. EITHER the positive image is on an opaque glass support of opal glass.....12

OR the positive image appears to be on an opaque glass support, under clear glass.....13

12. The positive image is on glass which is frosted.

OPALOTYPE
1890's-?

- image is on a glass surface similar to opal glass;
- the image may be a carbon transfer or some other type of emulsion coated directly upon it;
- images are often vignetted portraits.

13. The positive image is behind glass which is clear, the whole assembly being opaque.

CRYSTOLEUM
1880's-1930's

- a positive image, usually a print on paper stuck to the back of a piece of clear-curved glass;
- image usually coloured from behind.

14. The glass support has a negative image.....15

15. EITHER the spot-tests are first negative with water and second positive with alcohol.....16

OR the spot-tests are first positive with water and second negative with alcohol.....17

16. The image colour by reflected light is brown-black in the shadows and cream in the highlights with a grey-black image colour by transmitted light.

COLLODION WET OR DRY PLATES

WET PLATES 1851-1885

DRY PLATES 1854-1885

- transparent glass support with a negative image;
- the glass is thick and usually has ground edges;
- the emulsion shows flow lines at the edge since it was hand-coated;
- a hand lens (10X) shows a smooth glossy surface;
- mechanical abrasion and pencil retouching is common on facial areas of the image.

17. The image colour is a neutral grey by both transmitted light and reflected light.

GELATIN DRY PLATE
1880-PRESENT

- transparent glass support with a negative image;
- glass is thin with sharply-cut edges;
- emulsion is even to the edges, machine-coated;
- emulsion often shows flaking at the edges;
- hand lens (10X) examination shows a smooth semi-matt surface;
- the water spot-test under a hand lens shows a distinct swelling after blotting the excess water;
- mechanical abrasion and pencil retouching are common on facial areas of the image;
- the emulsion often shows a silver-coloured tarnish, especially on the edges of the plate.

KEY C
PLASTIC SUPPORTS

1. The support appears to be of plastic.....2

    2. EITHER the plastic support curls when given the water-test on the support side.....3

        OR the plastic support does not curl when given the water spot-test on the support side.....4

3. The support side curls when spot-tested with water.

EASTMAN GELATINE FILM
1884-1890

- this is a rare process;
- this film looks like a plastic-based material but it is completely gelatin;
- it may be brittle and the edges may be uneven;
- when used in the Kodak No. 1 camera (1888), it gave a circular image of 2 1/2" diameter;
- a later film used in the Kodak No. 2 camera (1889) gave a circular image of 3 1/2" diameter.

4. EITHER a punching taken from the film edge:

    a) immediately sinks to the bottom in a solution of trichloroethylene and trichloroethane.....5

    OR b) immediately floats to the top in a solution of trichloroethylene and trichloroethane.....6

    OR c) stays within the solution of trichloroethylene and trichloroethane at various levels, neither settling on the bottom nor floating to the top during the ten second period.....7

5. A punching taken from the film edge immediately sinks to the bottom in a solution of trichloroethylene and trichloroethane (within a ten second period).

CELLULOSE NITRATE
1889-1939

1939-1951 (Gradually replaced by Cellulose Acetate)

- the most obvious identifier is the printed embossing on the edge of the film, "NITRATE";
- when burnt, it contributes to the combustion;
- it is a very flammable substance;
- early roll film (1889-1903) was extremely thin and curled easily;
- later non-curl roll film (1903-1939) was thicker with gelatin on both sides of the base to minimize curling;
- machine cut sheets (1913-1939) were uniformly rectangular and had the edge embossed with "NITRATE";
- degraded samples smell of nitric acid, become brittle, and may have a sticky or water soluble emulsion;
- this item must be copied and put into cold storage (see TB No. 9).

6. A punching taken from the film edge immediately floats to the top in a solution of trichloroethylene and trichloroethane (within a ten second period)

CELLULOSE ACETATE
1923-PRESENT

- the most obvious identifier is the word "SAFETY" embossed on the edge of the film;
- when burnt in a flame, it will burn with difficulty but it will not flame up or add to the combustion;
- early acetates may show a bubbling or lifting of the emulsion between the emulsion layer and the base;
- older films may smell of acetic acid;
- early examples may float within the solution while a contemporary example will float to the top. Identification will therefore require confirmation by a second identifier such as the subject content of the image itself.

7. A punching taken from the film edge stays within the solution of trichlorothylene and trichloroethane, neither sinking to the bottom nor rising to the top but floating somewhere between these two (within a ten second period).

POLYESTER
1960-PRESENT

- some of these products will have "ESTAR" embossed on the film edge;
- this is a contemporary product and subject content should reflect this fact;
- this base burns with difficulty.

KEY D
PAPER SUPPORTS

1. The support appears to be of paper.....2

    2. EITHER the paper support is prepared and coated, not showing the texture of the paper surface (i.e. the paper on this page).....3

        OR the paper support is unprepared and uncoated, showing the texture of the paper surface (i.e., blotting paper).....12

3. EITHER the prepared and coated paper has a glossy or semi-glossy surfaced, positive image.....4

    OR the prepared and coated paper has a matt-surfaced, positive image.....5

        4A. A coated paper with a positive image on a glossy surface which when spot-tested with water gives a positive result, showing a swelling of the emulsion.

GELATINO-CHLORIDE PRINT
1880-1910

GELATIN ARISTOTYPE
1890-1930's

GELATIN SILVER PRINT
1880's-PRESENT

- a thick-coated paper;
- most common image colour is black and white or sepia, although other tones could be obtained;
- no distinction can be made between the above processes; they are all gelatin emulsions and they may have been either print-out-papers or developing-out-papers, or they may have been either contact papers or enlarging papers.

4B. A coated paper with a positive image on a glossy surface which when spot-tested with water gives a negative result and when spot-tested with alcohol gives a positive result, showing the dissolution of the emulsion.

COLLODIO-CHLORIDE
1888-1910

COLLODION ARISTOTYPE
1890-1930's

- a thick paper showing a very high gloss and smooth surface;
- most common image colour is sepia or black and white;
- no distinction can be made between the above processes; they are both collodion emulsions.

4C. A coated paper with a positive image on a glossy to semi-gloss surface which when spot-tested with both water and alcohol gives a negative result in both cases.

ALBUMEN PRINT
1850-1895

- the surface has an eggshell finish which is glossy or semi-gloss with a yellowish-white highlight tint;
- the coating is very thin and prints which are not mounted show a decided curl;
- image colours are sepia to yellow;
- the prints are usually found mounted on one of the following mount sizes:

	4 1/4" X 2 1/2 Carte-de-visite	1859
	4 1/2 X 6 1/2 Cabinet	1886
approx.	3" X 7" Stereocard (rounded corners)	1859
	3 1/4" X 5" Victoria	1870
	4" X 7" Promenade	1875
	5 1/4" X 8 1/2" Boudoir	
	6 7/8" X 9 7/8" Imperial	
	8 1/4" X 4" Panel	
approx.	4 1/2 X 7" or 5" X 7" Artiste, Cabinet, Deluxe, Stereocard	1873

5. EITHER the paper is coated and has a positive image and a matt surface, as well as a positive water spot-test.....6

   OR the paper is coated and has a positive image and a matt surface, as well as a negative water spot-test.....8

   6. EITHER the coated matt paper (with a positive image, when once again locally spot-tested with water) did not display a relief image between the highlight and shadow areas after blotting up the excess surface moisture.....7

      OR the coated matt paper (with a positive image, when once again locally spot-tested with water), displayed a relief image between the highlight and shadow areas after blotting up the excess surface moisture.....11

7. A positive matt image which when water spot-tested on a shadow and highlight area does not show a relief image but does swell the emulsion.

GELATIN SILVER PRINT
1880's-PRESENT

GELATINO-CHLORIDE PRINT
1888-1910

GELATIN ARISTOTYPE
1890-1930's

- See information in Key D, unit 4A, p. 20.

8. EITHER the positive matt image when spot-tested with water gave a negative test but when spot-tested with alcohol gave a positive test.....9

OR the positive matt image when spot-tested with water and alcohol gave a negative test for both.....10

9. A coated paper with a positive image on a matt surface which when spot-tested with water gave a negative test but which dissolved the emulsion when spot-tested with the alcohol test.

COLLODIO-CHLORIDE
1888-1910

COLLODION ARISTOTYPE
1890-1930's

- See information in Key D, unit 4B, p. 21.

10A. A paper which is usually coated on a matt surface that, when spot-tested with water and alcohol, gives a negative test for both and which has a delicate image with a full image tonal range.

PLATINOTYPE
1880-1930

OR PALLADIOTYPE
1914-1930

- the image colour can include sepia, warm or neutral grey tones;
- these prints will not fade;
- palladium replaced platinum due to economic considerations;
- this process was used extensively as an art form and the subject content may reflect this.

10B. A paper which is coated on a matt surface that, when spot-tested with water and alcohol, gives a negative test for both and which has a yellowish image with yellow-white highlight tone.

ALBUMEN PRINT
1850-1895

- See information in Key D, unit 4C, p. 21.

11. A positive matt image which when water spot-tested on a shadow and highlight area shows a relief.

WOODBURYTYPE
1865-1890's

- The relief may be visible without the need of a water spot-test;
- image colour was usually chocolate brown or red but any colour was possible;
- it is a pigment print and will not show fading characteristics;
- they are often tipped into books or mounted on card mounts and identified as woodburytypes on these same mounts.

12. EITHER the unprepared and uncoated paper is opaque.....13

OR the unprepared and uncoated paper is translucent.....14

13A. An opaque paper with a dark blue image colour.

CYANOTYPE
1885-1910

- image colour ranges from a deep, dark blue to a dark violet blue;
- image may be toned to other colours but these are not common;
- the image is usually contrasty;
- this material, if an engineering drawing, is still available today;
- the paper is a quality paper and the surface texture of the paper is evident through the image;
- the image exists within the top layer of the paper, (i.e., it does not sit on the top surface of the paper).

13B. An opaque paper with an image colour which is usually sepia, brown or purple.

SILVER PRINT OR PLAIN SALTED PRINT
1839-1860

1890's-?

- the image is on a quality paper and the paper surface texture is evident through the image;
- the image exists within the top layer of the paper and not on its surface, (i.e., it is an unprepared and uncoated paper);
- image tones range from brown to yellow-brown as well as purple;
- the image displays fading to a pale yellow colour, especially at the edges;
- other terms used to identify this process include plain-salted print, salted print and silver-salted print;
- a revival of this process took place at the turn of the century.

14. An unprepared and uncoated, translucent paper.....15

15A. A translucent paper with a circular negative image.

EASTMAN PAPER NEGATIVE
1884-1895

- a rare occurrence, usually in poor physical condition;
- the translucent quality is the result of applying oils and waxes to this artifact and it will probably fluoresce under U.V. light (black light);
- the dimensions are usually less than 4" X 5".

15B. A translucent paper with non-circular, negative image.

CALOTYPE OR
TALBOTYPE
1840-1865

- a rare occurrence;
- the translucent quality is the result of applying oils and waxes and it will probably fluoresce under U.V. light (black light);
- usually a quality art or writing paper.

VII. INDEX

VIII. GLOSSARY

Definitions appearing in this glossary have been adapted and in some cases altered to fulfill the requirements of this bulletin; as such, they may deviate somewhat from normal photographic usage.

Albumen emulsion -
A coated light-sensitive layer in which the medium is a complex protein. Examples include print-out paper, lantern slides and glass plate negatives. See page 21.

Alcohol -
An organic solvent also described as ethyl alcohol or ethanol. It is used as an identifier when examining collodion emulsions. Do not use **"methyl alcohol" (methanol).**

Alcohol Spot-Test -
A test involving the local application of alcohol by means of a swab to an emulsion. The solubility of the emulsion by this solvent is a positive test. Instructions for the execution of the test are outlined on page 5.

Artifact (Photographic) -
A photographic artifact is the product resulting from the reaction of light on a light-sensitive emulsion to produce an image. This term however excludes images resulting from a photo mechanical process.

Base Support -
A layer onto which a light-sensitive emulsion is coated. The most common examples are paper, plastic and glass although any material capable of maintaining an image can be utilized.

Coated Paper Support -
A base support of paper which has had its surface texture altered from the natural rough texture by the addition of another layer. A common additive is barium sulphate in gelatin to provide a smooth, non-porous surface for the emulsion layer.

Collodion Emulsion -
A coated, light-sensitive layer in which the medium is a solution of cellulose nitrate in alcohol and ether.

Colloid Emulsion -
A coated, light-sensitive layer in which the medium is a colloid. Organic colloids used in photography include albumen, gelatin, glue, starch and gum arabic.

Contact Paper -
A slow speed developing paper giving a positive print when printed in contact with a negative image.

Continuous Tone Image -
An image which has been built-up by deposits to produce a range of complete tones.

Contrast, Image -
See Image contrast.

Developing-Out-Paper (D.O.P.) -
A sensitized paper for contact printing or enlarging in which the image is realized by a chemical developing step.

Dissolution of the Emulsion -
See Alcohol Spot-Test and Collodion Emulsion.

Emulsion -
A coating of a light-sensitive material, for example silver salts, suspended in a medium and coated upon a support layer.

Emulsion, (Specific) -
See the particular heading required; i.e., Gelatin Emulsion.

Emulsion Ridges -
A physical feature common to hand-prepared emulsions resulting from the pouring of a viscous solution onto a support. A very good example of this is the collodion emulsion. See column 2, page 4.

Enlarging Paper -
A fast speed developing paper giving a positive image when printed through an optical enlarger from a negative image.

Fading -
A lightening or disappearance of the image of a photograph.

Flaking -
A breaking off of the emulsion from the support, particularly along the edges of the support, leaving voids in the image.

Flat Image -
An image which does not swell when spot-tested with water and which does not show a relief between the shadows and the high-lights of the image. This is the opposite of a relief image.

Frilling -
A separation and lifting of the emulsion from the edges of the support.

Gelatin Emulsion -
A coated, light-sensitive layer in which the medium is a natural protein colloid.

Glass Support -
A layer which carries either a positive or a negative emulsion coated on a transparent support of glass.

Glossy Surface Texture -
See surface texture, glossy.

Gum Arabic -
A water soluble gum used in the bi-chromated colloid processes to form a relief image.

Hand-coloured -
A local application of coloured pigments or dyes to enhance a photographic positive, particularly portraits.

Highlights -
An area of the subject which is bright and which reproduces as a dense area on a negative and as a light area on a positive.

Image Colour -
A description of the predominant tone of the image of a monochrome artifact. The colours range from cold blue-black to warm red-brown.

Image Contrast -
A difference in appearance between the most transparent area and the most opaque area of a negative or positive image.

Lantern slide -
A positive transparency on glass or plastic designed for projection.

Matt surface texture -
See surface texture, matt.

Metallic Support -
A base support of metal which maintains a photographic image.

Mount -
A card of paperboard on which prints are adhered. The photographer and his address often appear on the mount. For specific mount sizes,see page 22.

Negative Image -
An image of a subject in which the tonal range is the inverse of the original brightness range. The dark shadows of the subject reproduce as transparent areas of the negatives.

Neutral-black -
An image where the image is a dark grey without any observable tints such as blue-black or brown-black.

Oblique light -
A light which is viewed as reflected from a surface at a shallow angle and which shows the maximum relief of the reflecting surface.

Opaque support -
A non-translucent, non-transparent material.

Opal Glass -
A glass which has a translucent white tint throughout its thickness.

Ornamental Case -
A container designed to hold and display case photographs. Case photographs include daguerreotypes, ambrotypes and tintypes. The contruction is displayed on page 8.

Paper Support -
A layer of paper onto which a light-sensitive emulsion is coated. Paper supports show the largest variety of types of photographic artifacts.

Pigment Print -
A print which is made up of a colloid relief image and which will not fade.

Plastic Support -
A flexible, transparent support on which a photographic emulsion has been coated.

Plate -
A photographic material composed of a glass support coated with a photographic emulsion.

Positive Image -
An image on a print or transparency in which the light and dark areas of the subject are reproduced as the same light and dark areas of the print or transparency.

Prepared Paper Support -
A paper support which has been coated with a layer of an inert material in a gelatin solution upon which a photographic emulsion is coated.

Printing-Out-Paper (P.O.P.) -
A light-sensitive emulsion yielding a visible image directly when contact printed in daylight illumination.

Reflected Light -
A light which leaves the surface of the object at approximately 45 degrees.

Relief Image -
An image which shows a three-dimensional quality between the shadows and the highlights, and which swells when spot-tested with water. See Illustration, column 2, page 5.

Retouching -
Work carried out on a photograph to alter the tonal values or blemishes.

Shadow -
An area of low density in negative images and of a high density in positive images.

Support, (Specific) -
See the particular heading required; i.e., glass support.

Surface Texture, Glossy -
A smooth, regular, shiny surface.

Surface Texture, Matt -
A diffuse, non-directional surface.

Swelling of the Emulsion -
An absorption of water by an emulsion resulting in a swelling or rising of the emulsion in that area. See water spot-test.

Tarnish -
A discolouration of silver images by the formation of silver sulphide. Colours range from blue-black to yellow-brown and occur most frequently on areas of high silver content.

Translucent paper support -
A paper support which allows the passage of light because of the application of oils or waxes to the paper.

Transmitted Light -
Light which has travelled through a material.

Transparency -
A positive image on a transparent or translucent support designed to be viewed by transmitted light.

Uncoated or Unprepared Paper Support -
A paper support which is raw paper and which has not been covered with any layers other than the emulsion. The paper surface characteristics are still evident through the image.

Water Spot-Test -
A test involving the local application of water by means of a swab to an emulsion. The swelling of the emulsion by this solvent is a positive test. Instructions for the execution of the test are outlined on page 5.

IX. APPENDIX

Formulation for spot-test solution, plastic supports:

1. Trichloroethylene, 43 cc added to trichloroethane, 25 cc for a total volume of 68 cc; your pharmacist may mix this solution up for you if requested;

OR

2. Kodak Film Cleaner, 10 cc added to trichloroethylene, 40 cc.

The mixture should be placed into a tall, thin test tube and the punching inserted. Stopper the tube and invert while observing the sample. Repeat until three repetitive observations have been made.

Removal of the test sample punching after testing is done by pouring the solution through a clean colourless cotton fabric into a storage bottle. Keep the solution closed and in a well-ventilated area. Mix fresh solution at regular intervals.

X. BIBLIOGRAPHY

1. Arthur T. Gill
"Photographic Processes, A Glossary and a Chart for Recognition", Museums Association Information Sheet, IS No. 21, 1978, London, Museums Association.

2. Robert A. Weinstein & Larry Booth
"Collection, Use and Care of Historical Photographs", 1977, American Association for State and Local History, Nashville.

3. D.A. Spencer
"The Focal Dictionary of Photographic Technologies", 1973, The Focal Press, London.

4. Beaumont Newhall
"Histoire de la photographie depuis 1839 et jusqu'a nos jours". Traduit de l'américain par André Jammes, 1967, Musée d'Art moderne, Paris Bélier-Prisma.

XI. SUPPLIES

1. Local Art Store

   Clean, buff-coloured paper
   Blotting paper, white
   (Filter paper from the local high school chemistry department is an alternative)
   Hole puncher (single hole, small aperture)

2. Local Hardware Store

   Sheets of glass, 8" X 10" and larger

3. Local Photographic Store

   Kodak cotton gloves
   Kodak film cleaner

4. Local Pharmacy

   Distilled water
   Alcohol (Ethanol)
   Solvent Dropper Bottles
   Trichloroethylene
   Trichloroethane
   Test Tube and stopper
   (local high school chemistry department)

5. Specialty Items

   Micro Swabs, absorbant tips,
   L.D. Caulk Co. of Canada
   172 John Street
   Toronto, Ontario M5T 1X5
   (416) 598-3121
   (Local dentist uses these for root canal work)

   Chemicals and Glassware
   Fisher Scientific Co. Ltd.
   184 Railside Road
   Don Mills, Ontario M3A 1A9
   (416) 445-2121