Preservation and Care of Philatelic Materials

Subsidiary Page 7
Books: Binding, Inks, and Storage

Bookbinding

Most philatelists do maintain reference books in their personal libraries, so such collectors will be somewhat interested in at least an overview of bookbinding. The following account does not go into great detail, but it does discuss the materials used by bookbinders. The basic principles involved in hand binding have not changed over the centuries.

In 1992, the Republic of China issued a set of stamps featuring different types of binding used with ancient books. The set of stamps is shown in **Figure 6.**

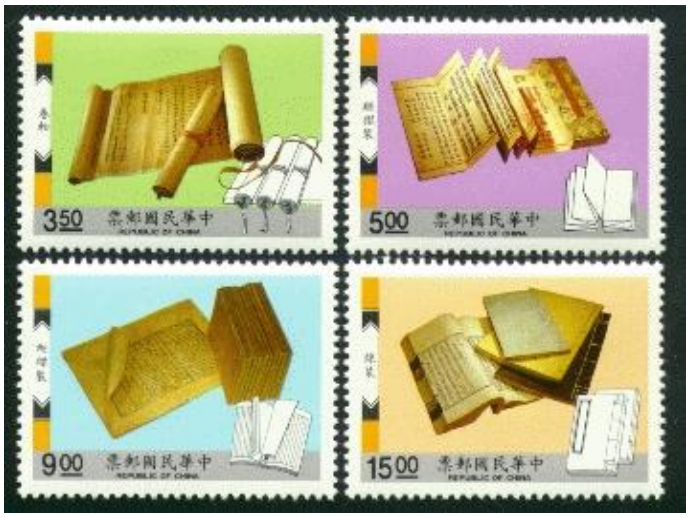

Figure 6. Bookbinding used with ancient Chinese books.
3.50: Scroll; 5.00: Fold Bound Book; 9:00: Butterfly Binding; 15:00: String Bound Book.
Stamps courtesy Michael Rogers, Inc.

The parts of a handbound book are illustrated in **Figure 7**. All in all, bookbinders do a conscientious job. They use materials that are conductive to long life. Bookbinders take pride in their workmanship.

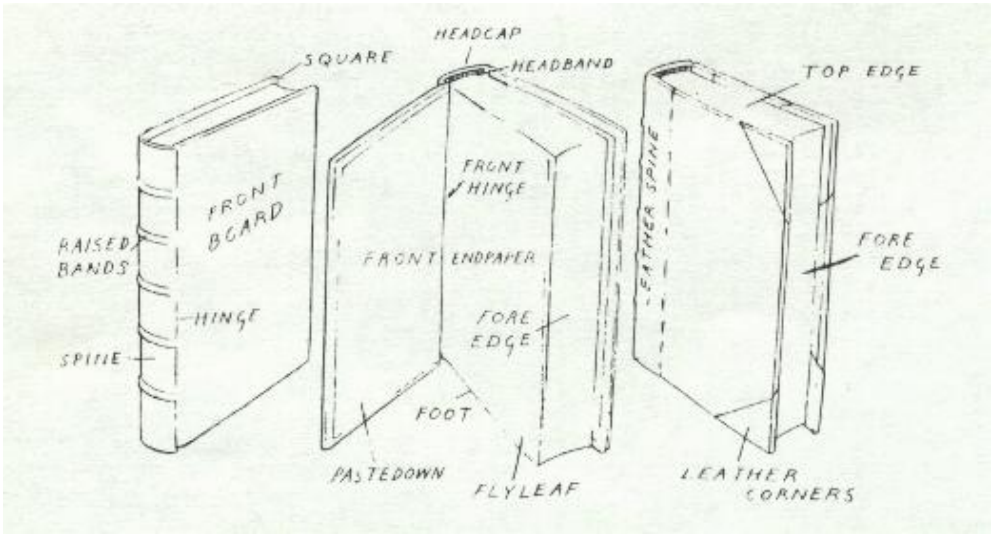

Figure 7. Parts of a bound book. A half-bound volume is at the right.

Wesley L. Boomgaarden (personal communication), Preservation Officer at The Ohio State University Libraries, advised us of the standards of American National Standards Institute, Inc. to establish criteria for permanence of uncoated paper (American National Standard for Permanence of Paper for Publications and Documents in Libraries and Archives). These standards establish criteria for paper to meet requirements including pH and alkaline reserve which, if complied with in printed works, should result in the work lasting several hundred years without significant deterioration under normal use and storage. The standards set a minimum pH for uncoated paper as 7.5 and a minimum alkaline reserve as 2%. The standard for coated paper base stock can be as low as pH 7.0 if the paper as a whole meets the alkaline reserve requirement. Many publishers site the standard on the verso of the title pages of their works. Manufacturers of albums intended to house philatelic materials, particularly stamps, would provide a considerable service to the philatelic community by complying with these standards.

The essential elements of bookbinding are as follows:

Paste

For mending tears in a book, a paste made of cornstarch or rice flour is used. These pastes do not leave stains and do not contain injurious chemicals. Thin transparent Japanese tissue is used to cover a tear. After drying, the tissue is removed, leaving only a few fibers in the tear as reinforcement.

Glue

One of the chief materials required by a bookbinder is glue. An animal glue made from hides is the one most commonly used. It comes in large cakes or chunks. The glue is heated in a large glue pot and water is added. The water is absorbed into the glue. As the water evaporates, more water is added once a day until the proper consistency is attained.

Commercial Paste

Bookbinders also use a commercial paste that is purchased from suppliers. This type of paste has the consistency of thick cream.

Leather

Better books are often bound in leather. Whether the book is full bound, three-quarters bound, or half bound in leather, the best leather is from near the backbone. When a book is half bound, the leather covers the spline and about a quarter of the surface of the front

and back covers. It is usual to cover the two corners diagonally on the front and back with leather when the book is half bound.

Doublures

Doublures is a name of French origin and refers to a doubling of material or a lining. It is particularly needed when books are bound in leather. Doublures are silk or woven fabric. Flyleaves or end papers are blank pages used at the beginning and the end of a book.

Sewing Cord

Sewing cord used in the bookbinding industry is hemp. The strands contain long fibers. If tape is used instead of cords, it should be unbleached. The French make a finely woven bleached tape that is very strong. It has been found to be very satisfactory. Thread for sewing is unbleached linen. Surgeon's silk thread is very strong and is satisfactory.

Solander Cases

In many instances, valuable books are case bound. The solander case in such instances is usually lined with a soft chamois or flannel cloth.

Storage

Baadke (1997b) has provided a good summary of the issues which need to be considered regarding proper safe storage of philatelic materials.

Many of us like to use wood containers for storing our philatelic treasurers. If you insist on wood, choose old well seasoned wood or well dried soft woods (except Douglas Fir or Sitka Spruce). Oak is especially corrosive and should not be used. Wood gives off natural acidic vapors, and no varnish or paint will prevent all vapors from escaping. Shellac or clear acrylic varnishes will improve the sealing of wood to some extent, but they do not provide a complete barrier.

Storage chests composed of cedar, while very popular due to the insect repellent properties of the volatile aromatic hydrocarbons in the wood, are not recommended at all for storage of philatelic items due to the damage which can be caused by these aromatic hydrocarbons. If you must choose wood boxes for storage, allow a few months waiting time before storing your philatelic material in them. It would be better by far to use acid free board containers for storage, rather than wood.

Acid free storage boxes or boxes made from fluted polypropylene are good alternatives. Corrugated cardboard boxes, although readily available, should be avoided as they are highly acidic and will, in time, degrade the contents.

Certain types of photographic materials are sensitive to alkalinity and should be stored in acid free unbuffered (neutral pH) enclosures. Covers should be placed in acid free paper envelopes or polyester (Mylar) enclosures. The material holding the covers should then be placed in acid free file folders and stored vertically in baked enamel metal filing cabinets. Alternatively, if you insist on using wooden cabinets, be certain that they are thoroughly sealed with a high quality waterproof urethane or a good latex paint such as Pratt and Lambert's Vapox.

Acid free slip covers and boxes are available commercially in various sizes, but it is often more suitable to construct simple custom-designed enclosures. Materials are readily available. Two practical types of enclosures are described in **Figure 8.**

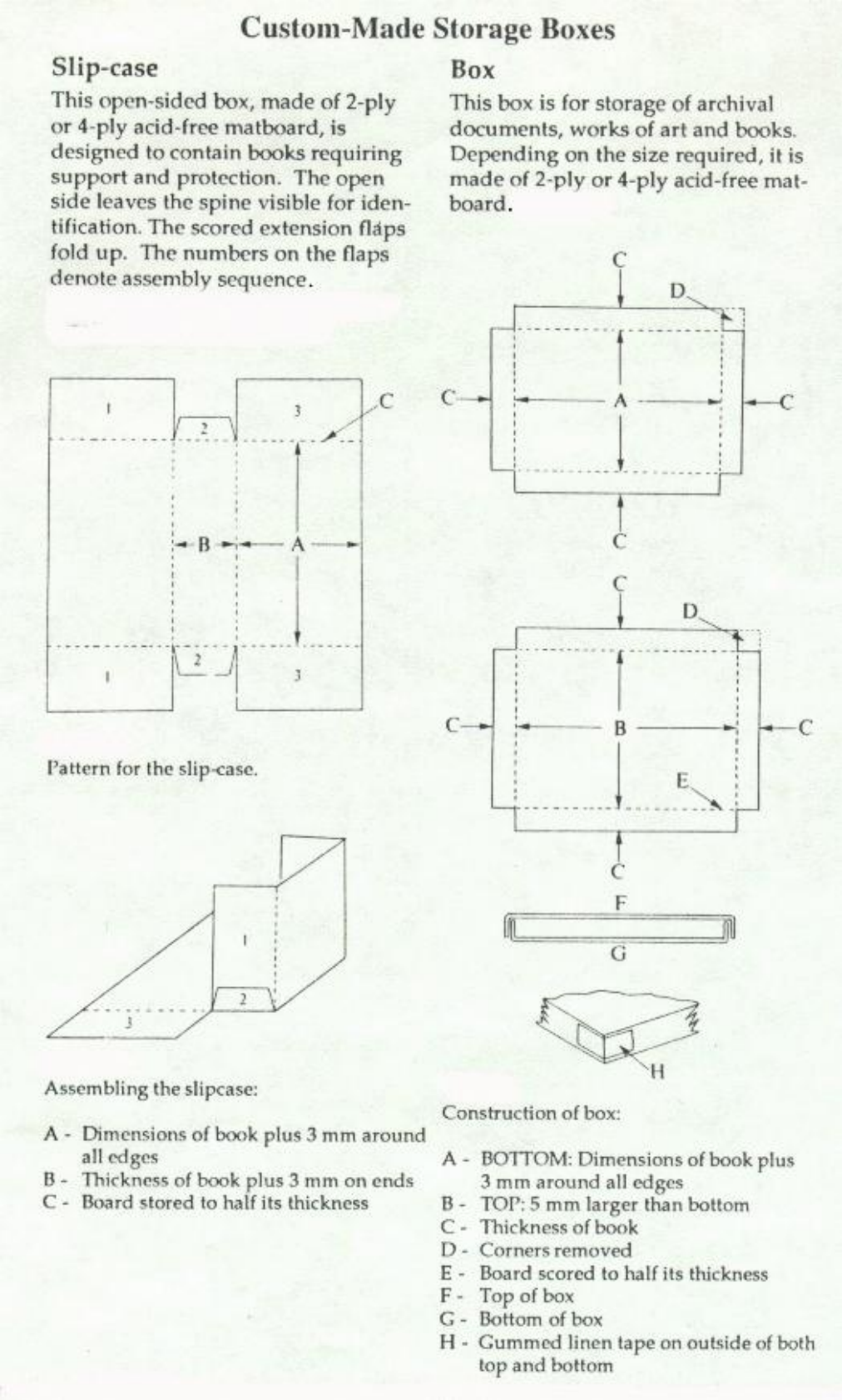

Figure 8. Patterns for custom-made storage boxes.

The following gives the equipment and materials required to construct custom-made storage boxes and the general directions for the construction of the containers.

Equipment and Materials:

- Metal ruler.
- Sharp knife.
- Two-ply or Four-ply acid free mat board from any good art supplier.
- Sturdy acid free paper such as Permalife (80 lb. weight). A brand designated "Old White" is available from Talas Library Service, 568 Broadway, New York, New York 10012.
- 4 cm (approx. 1.5 inch) gummed linen acid free tape.
- Poly (vinyl) acetate adhesive (PVA), LePage's Bondfast, Weldbond, Elmer's Glue All, Jade 454 and 403, or C. M. Bond.

General Instructions:

1. Draw out the pattern on matboard or paper, allowing 3 mm extra around all edges.
2. Cut out the pattern.
3. When matboard is used, score along the dotted lines with a sharp knife to make folding possible.
4. Use gummed linen tape to secure corners and to strengthen folds. If additional strengthening is required, use bookbinding cloth.

Prior to Use of Storage Box:

1. Remove all staples, paper clips, pins or any other metal attachments that were used to facilitate construction of the container.
2. Remove any plastic covers or interleaving.
3. Remove any envelopes, brown paper bags, newspaper wrappings and loose cardborad used to facilitate constrution of the container.
4. Remove all loose dust and dirt.

Inks

As philatelists and postal historians, we are concerned with three quite different types of ink: those for printing stamps, those for cancelling stamps, and writing inks used in some postal markings and addresses on covers.

Printing Inks: The various printing processes used to print stamps dictate the type of ink used. A brief review of the many printing processes and an examination of Figure 9 will help us to understand the inks used for each process.

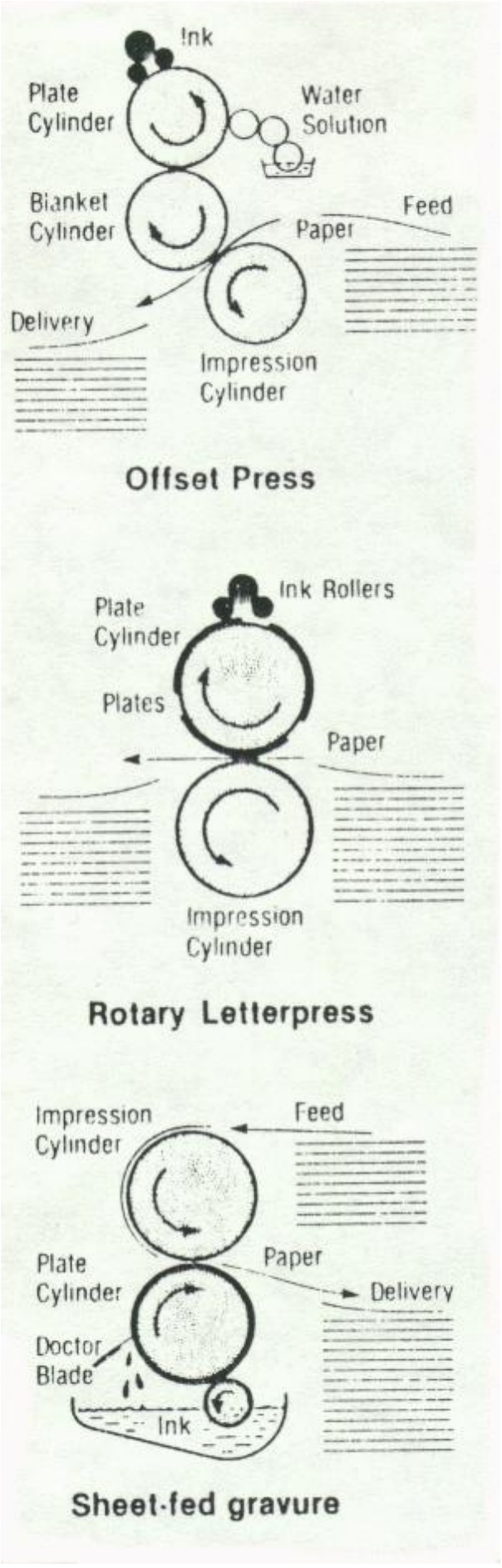

Figure 9. Generalized printing methods.

General Description of Printing Methods:

Lithography

A metal plate whose surface is so treated that what is to be printed can be inked but the remaining surface areas reject ink.

Collotype

A thin gelatin piece exposed to light, treated with reagents and used to print by lithography. Seldom used for stamps.

Letterpress

Refers to printing from raised moveable type of zincs with raised images. No printing plate is used. Sometimes the moveable type is used to make a stereotype place, which is then curved and used for the printing. This is known as *rotary letterpress*.

Planographic

Printed from a flat level plate.

Photogravure

Printing from a photographic negative transferred to a metal plate by the use of acid to etch in the design and text. For rotary gravure (rotogravure) the printing plates are bent into a curve before hardening.

Intaglio

Engraved or incised design cut into a metal plate. Ink on the incised design is transferred to the paper and dries in a raised image.

Line Engraving

Incised or engraved into metal as lines of varying width.

Thermographic

The printing is a process where a pigmented powder is dusted onto the wet ink and then subjected to infrared radiation, producing a raised image with the appearance of an engraved finish.

Metallic Printing

A metallic ink has fine powdered metal as a pigment in a suitable vehicle. Another type of metallic printing uses a fine metallic film on a foil, usually a polyester. The color is transferred to paper from the foil by heat and pressure.

The inks used for printing stamps have varied down through the years, but generally there were similarities to the inks in normal commercial use at a particular time. Stamps printed by lithography, collotype, and letterpress use "paste inks," which are inks that are pigment-based and use a drying oil as the binding agent. These inks dry by absorption into the paper and by the evaporation of the solvent. For photogravure, the ink is a pigment/dye dissolved in a solvent such as xylene with a resin binder added. These inks are more sensitive to solvents than other printing inks. They dry by absorption into the paper and by atmospheric drying.

At various times, fugitive inks have been used in printing postage stamps, and these cause problems. Fugitive inks fade over time and run when the stamps are soaked off paper, even to the point where the colored ink will dye the stamp paper, including the back of the stamp. Canada's three-cent Jubilee issue of 1897 is noted for this as are many of the purple and/or red-violet colored stamps of the U. S. Extreme care must be taken in separating such stamps from the paper they adhere to by not over soaking in water. The addition of a teaspoon of salt to four cups of cold water used in soaking the stamps from the paper will stabilize the ink and reduce running to a minimum.

Some countries purposely use fugitive inks to prevent re-use of uncancelled washed stamps. Salt (sodium chloride) in the water in which the stamps are being soaked acts as a sort of sizing agent and results in a stiffening of the paper. Sizing is discussed in another section on this website.

Collectors who live in areas where tap water is chlorinated may have noticed that used stamps, when soaked off paper and left in the water for half an hour or more, will brighten up considerably. This is due to the miniscule amount of chlorine present in the water. Stamps should not be left in the water longer than is necessary to separate the stamps from the adhering paper because water softens and changes the paper fibre.

Many collectors add three drops of household bleach (Javex or Chlorox), which contains sodium hypochlorite, to a quart of tepid water for washing stamps. This solution stabilizes most inks and brightens the stamps. As soon as the stamps have been soaked from the various papers, the stamps should be thoroughly rinsed in plain tepid water before drying. Collectors are warned to use precautions when handling bleaching compounds. Bleach is a great destroyer. If stronger solutions than those described here are used, the solutions will destroy stamps and/or fade the inks of the stamps.

Cancellation Inks: Inks used for cancellation purposes are commonly designed to be indelible and to be resistant to removal by chemicals or washings. Further, cancellation inks are usually made to recipes controlled and held confidential by postal administrations. These inks use a pigment suspended in a medium such as a linseed oil base. The medium adheres the pigment to the paper's surface. At times, a spirit base is also used. These inks are diffused into the paper fibres and remain there after the spirit base has evaporated.

An excess of oil in the ink results in the oil bleeding beyond the cancellation into the paper. An example of this is shown in Figure 10.

Figure 10. Cover showing excessive oil in cancellation and in writing ink of address.

Most of us have seen covers with oily brown stains around and beyond the cancellation. Many old stamps, heavily cancelled by a mischievous postal clerk, can be improved by carefully using pure, uncolored liquid soap on the ball of one's finger or on the end of a cotton tipped swab, and then washing the stamp lightly. As the soap blackens or becomes grey, wash it off the stamp, and repeat the process several times. Extreme care must be taken so that the soap acts as a lubricant and that no abrasion takes place. Although the soap will decrease the black cancellation, it will also bleach the color in the stamp. For this reason, caution and care are required, and the stamp should be thoroughly washed. After the stamp has been washed, it should be dried between two sheets of blotting paper. The result of this cleansing is a vast improvement of the stamp through a reduction of the heavy black cancellation to a grey-black color. The process should not be confused with wet cleaning a stamp, which is described in another section of this website.

Postal history collectors have all encountered cancellations on some covers a century or more old that have faded to the point of being unreadable. This is usually due to the use in the cancelling ink of organic dyes, which are susceptible to fading as a result of light. In the 1800's most countries used a carbon ink for hand cancelling postage stamps. Carbon pigment particles were mixed with gum arabic (Acacia). The ingredients were sent to the local postmaster with instructions on how to mix the ink. Very few problems have been encountered with this ink, with the exception of some water solubility.

A third type of nineteenth century cancelling ink was a blue-black ink made from an extract from wood logs, which accounts for its color. This ink fades when exposed to light and is affected by acids and alkalis. Blue inks were based on Prussian Blue pigments made soluble in an oxalic acid solution. A Brazil wood extract was used in the early days for a red-carmine ink.

Writing Inks: One of the older inks used exclusively for writing was known as Iron Gall ink. This was a black acidic ink made from oat galls, produced on oak trees by a wasp as protection for its larvae. Iron sulphate was added to the tannins extracted from the oak galls by boiling in water. It is a strongly acidic ink and causes immense damage to paper fibres. Some recipes call for the addition of a small amount of sulphuric acid to give the ink better adherence to the paper. This made the ink even more of a disaster for historians as it will eventually degrade the paper and totally destroy it where the writing occurs, leaving holes in the paper. Furthermore, the ink will migrate to adjoining sheets, showing up as a brown writing in reverse. Often called "mirror writing," this migration produces a brown discoloration that is very injurious to papers. Studies have shown that sulphates and chlorides in writing ink will also migrate on papers.

Modern writing inks are so diverse as to defy categorization. Many modern inks, those in ball point pens for example, are sensitive to organic solvents. Today, the composition of inks is continually fluctuating.