

## The Care of Books

The book is an ingenious invention. Compact and portable, it has been the primary means of transmitting and preserving mankind's accumulated knowledge for hundreds of years. Throughout that time, printers and bookbinders have used a wide variety of materials and structures. Some have proven to be remarkably durable; others have been vulnerable to chemical deterioration and mechanical stress. While these problems can be quite complex, a few simple preventive measures can greatly extend the life of a book.

### Environmental Conditions

Books are composed of a variety of materials: paper, cloth, leather, paste, and glue. These, like all organic materials, are vulnerable to conditions and changes in the environment in which they are kept. Key factors are light, temperature, and humidity. Books should not be exposed to excessive amounts of light. Daylight and fluorescent light, which have high levels of ultraviolet radiation, cause the most rapid deterioration and fading. Normal incandescent house lights are less harmful, although all light causes some damage. Keep lights turned off in rooms that are not in use. Block daylight by using curtains, shades, or plastic filtering films on windows.

Similarly, books should not be exposed to rapid changes or extremes in temperature and humidity. Hot and dry conditions will desiccate and embrittle leather and paper; damp conditions will encourage mould growth. Therefore books should not be kept near sources of heat, such as radiators or fireplaces. Bookshelves should not be placed against outside walls, where pockets of cool

damp air can develop. Air conditioners, dehumidifiers, and humidifiers can be used to remove or add moisture or heat. A cool, dry, and stable environment is ideal. Where the book rooms are in regular use in a house, around 23-25 degrees Celsius and 50 percent relative humidity is recommended.

## Shelving

It is extremely important that books stood vertically on shelves are squarely upright and firmly supported by neighboring books or by bookends. Leaning at an angle puts stress on the entire book structure, deforming the spine and the joints where the covers are attached. Bookends must be stable and smooth so as not to damage the covers. Books should not be packed together so tightly, that they are difficult to remove without causing damage. Large, oversized books are best laid horizontally in stacks of no more than two or three high. Protective pads, such as squares of felt, may be placed between stacked books to prevent them from rubbing. Books on a shelf should be kept an inch or so back from the edge. The bare ledge of shelf will show up dust and droppings signaling insect activity. However books should not be pushed to the back of the shelf. Good air circulation is imperative to prevent stagnant air pockets where condensation will collect and mould will grow. Important or fragile books may require additional protection. Check with a conservator about the variety of available solutions: polyester book jackets and wrappers, wrappers made of lightweight alkaline paperboard, double-tray boxes, and slip covers.

## Storage

When books must be packed away for storage, do not wrap them in common household plastics (plastic kitchen wrap, garbage or cleaner bags) because these emit harmful gases as they degrade. Storage boxes made from alkaline corrugated, cardboard, or polypropylene, designed for the purpose are available from conservation suppliers. Avoid storing boxes of books in attics, garages, or basements, where temperature and humidity fluctuations are great, where pests may be a problem, and where leaks or floods are common. Always allow at least 100 mm of space between the boxes and the walls, ceilings, and floors. Many book materials are attractive to pests. Rats and mice, silverfish, and a host of smaller insects are common troublemakers. Watch carefully for signs of their presence. Vigilant housekeeping discourages them. If there is an infestation, consult a conservator.

## Handling and Use

Most books are not museum objects: their purpose is to be used and read. The handling of books, however, provides opportunities for accidental damage. Handle books only with freshly washed hands. Most of the dirt on book covers and pages is accumulated grime from oily fingerprints. While invisible initially, finger grease becomes all too visible as it oxidises and collects dirt. Wearing white cotton gloves for handling rare bindings is a good preventive measure, but turning fragile or brittle pages with gloves may cause damage and is not advised. When removing a book from the shelf, do not pull it out by its head-cap, which is apt to break. Either push the two neighboring books back in order to

grab the spine in the middle, or stretch a finger along the top edge of the book and rock it back in order to grab the spine.

Avoid carrying tall, unstable stacks of books that may fall. If it is necessary to transport more books than can be held securely in two hands, pack them snugly in boxes to prevent shifting and sliding. Never pack or shelve books fore edge down as this position suspends the entire weight of the book from its joints and pulls the text block out of its cover. A book is designed to be cradled in the reader's hands or lap; in this position very little stress is put on its spine or joints. Placing a book flat on a table can put tremendous stress on the structure, flattening the spine and stretching the joints. If a book must be opened on a flat surface, protect both covers by placing a support, such as another book, on either side. Alternatively, cradle the book in a towel with the two ends rolled up to support the covers. Similarly, never place an open book face down onto a flat surface, which forces the book open to a 180-degree angle. If a book must be photocopied, use a photocopier with an edge platform that requires only a 90-degree opening.

Other important tips: Use pencil, never pens (especially ball point and felt tip pens) on books as ink may run, bleed, or transfer onto other pages. Use only paper bookmarks, rather than metal or leather, which will tear or stain the pages. Avoid paper clips and other mechanical fasteners. Do not use the popular self-sticking memo slips as these leave an invisible residue of adhesive on the page to attract dirt. Avoid storing newspaper clippings, flowers, letters, or other miscellaneous material in books as they leave stains and stress the binding. And of course avoid eating, drinking, and smoking around books as the spills and stains are generally permanent.

## Cleaning and Maintenance

Books and book collections need to be cleaned regularly to remove accumulations of dust and dirt and to monitor their condition. When dusting the edge of a book, be sure to wipe away from the head-cap toward the fore edge, with a clean cloth or soft brush. Dirt brushed down the spine of the book is trapped there forever. A vacuum cleaner can also be used with the suction reduced. Cheese cloth or soft screening can be tied over the nozzle as an extra precautionary measure to catch any loose bits that might accidentally break off. More difficult dirt often can be removed by rubbing gently with a white plastic drafting eraser. Brush away the crumbs with a soft brush. In the past, leather books were often oiled to improve their feel and appearance. Unfortunately this can also cause stains, make the leather sticky, and degrade paper. Recent tests have shown that dressings are only cosmetic and do nothing to prolong the life of the leather. Consult a conservator before using dressings on books.

## Emergencies and Minor Disasters

If books get wet, the affected material needs to be stabilized as rapidly as possible to avoid further damage. Mould growth is likely if the temperature is over 25 degrees and the relative humidity is over 60 percent for more than 48 hours. Wet books may be frozen to stabilize them; they can be thawed and dried at a later time. Wrap individual books in paper or interleave large numbers of books with paper. Pack each book's spine down in waterproof containers or cardboard boxes lined with plastic. Freeze the books as rapidly as possible in a commercial freezer, a home freezer will suffice for a few books.

Small numbers of wet books can be air-dried. The books should be stood up, fanned open, alternating spine to fore edge, with sturdy bookends at each end to prevent them from falling over like dominoes. Use fans to circulate the air and increase evaporation. Drop the room temperature as low as practical to discourage mould and use dehumidifiers or air conditioners to reduce the humidity. Books are dry when they feel warm to the touch. Once dry, place them flat with a weight on top to minimize warping. Most books air dry satisfactorily although some residual staining and distortion is to be expected. Unfortunately, clay-coated (glossy) paper will stick together irreversibly unless the pages are separated while the book is still wet. Interleave every wet page with absorbent paper; repeat the process (exchanging the wet paper for dry) until the pages no longer cling to each other. Stand the book up and fan it open to finish drying completely.

### When to Consult a Conservator

Problems that are beyond an owner's capabilities should be referred to a conservator. Contact the AICCM, to find a conservator near to your location, or contact us direct and we will assist.