

ARST 587 PRESERVATION

ASSIGNMENT 2 | Deterioration: Susceptibility and Impact

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Title/ Author: *Les Misérables*/ Victor Hugo (Illustrated by A.A. Dixon)

Publication: Collins' London and Glasgow Clear-Type Press, Great Britain: 1914 or prior (?)

Language: English with French titling

Dimensions: 15.5 cm (H) x 10.4 cm (W) x 3.1 cm (D) (cover)

This pocket-sized, tight back, case-bound book is a reprint edition with an imitation leather cover and gilt detailing. The book is part of the Illustrated Classics Series (#142). It contains 900 pages of acidic, thin, machine-made paper and nine gloss-coated, grayscale illustrated plates. It is in poor physical condition with the most predominant damages being detached front and back cover boards, missing head and tail bands, chipping and flaking at the head and tail of the spine, and a broken spine in multiple locations. This condition is likely due to a combination of low-quality and acidic materials, less than ideal storage, and substantial handling.



Figure 1 Overall (recto) image of the book using regular, reflected lighting.

Long-Term Value

Historical value derives from the book's context of creation as part of the popular Illustrated Classics Series. The book's low-quality materials and structure are exemplary of the affordably produced and sold pocket books of the early to mid-1900s.

Intrinsic value primarily derives from the aesthetic and artistic quality of the book's illustrated plates containing watercolour prints, its all-gilt edges, and its gilt decorative embossing on the spine. The book's questionable date of publication (possible date of 1914 is only indicated by a prior owner signature) that is only ascertainable by physical examination of its structure and materials, and exhibit value, also contribute.

Causes of Damage and Deterioration:

Potential Effects, Degree of Sensitivity, and Impact on Value

**Note: Degree of sensitivity ranges from no sensitivity to high sensitivity.*

A. Environmental Conditions (Temperature, Relative Humidity, Light)

Potential Effects

- Too high temperature (room temperature) could cause distortion and embrittlement of the low-quality text block paper and weakening of the tight back binding adhesive.
- High relative humidity (RH) (above 65%) could cause biological damage, such as mould growth and foxing (paired with high temperature), and chemical damage, such as the disintegration of the low-quality paper from acidic hydrolysis.
- Fluctuating RH could cause cockling of the text block paper, the deterioration of the binding, and the layers of the gloss-coated illustrated plates to react.
- Extended and intense exposure to visible light and ultraviolet (UV) radiation could cause the yellowing or darkening of the light cream and white text block paper. This exposure could cause fading of the burgundy cover, prior owner signatures in blue pen, and all-gilt edges.
- Too low RH or extended and intense light exposure to light could cause embrittlement of the paper.

Degree of Sensitivity	LOW: The current condition of the book does not change its low sensitivity to incorrect temperature, RH, and light. Slight cockling and yellowing of the text block pages demonstrate that the book has already suffered damages from fluctuating temperature and RH, and UV radiation. Despite these damages and detached cover boards, storage with the boards will continue to provide a layer of protection for the text block.
Impact on Value	Historical value would not be significantly altered but would gradually enhance over time by displaying the low-quality of the text block paper through cockling and discolouration. Intrinsic value would gradually decrease at the same rate through the same cockling and discolouration of the illustrated plates, burgundy cover, and all-gilt edges.

B. Pollutants (Airborne, Transferred, Intrinsic)

Potential Effects	- Airborne pollutants (from the atmosphere, emissive products, people, and other objects) and transferred pollutants (from adhesives, cleaning agents, fatty acids from people, wooden shelves, pressed flowers, etc.) could cause discolouration, corrosion, and weakening of the burgundy imitation leather cover and endpapers, and the light cream and white paper of the text block (yellowing). - Fine particles like dust and dirt could attract pests and cause abrasions. - Intrinsic pollutants that are inherent in the book's material, such as the lignin in the low-quality paper of the text block, could cause edges of the paper to darken.
Degree of Sensitivity	MEDIUM: The darkening edges and yellowing of the acidic text block pages, grease stains on the endpapers, and pieces of pressure-sensitive tape show that the book has already suffered damage from pollutants. The tape and pressed flowers (transferred pollutants) moderately increase the books sensitivity. Partially removed pieces of tape are leaving residue, removing surface fibres, and/ or attracting dust and dirt. Adhered pieces have the risk of causing further discolouration and damage upon removal. The pressed purple and pink flowers could cause discolouration of the low-quality signature paper and the weakening of both the paper and the flowers with continued contact.
Impact on Value	Historical value would moderately increase over time with the gradual discolouration of the low-quality materials and more immediately with the removal of transferred pollutants like the pressure-sensitive tape. Intrinsic value would decrease at the same rate with this discolouration and weakening of the materials.

C. Pests (Microorganisms, Insects, Rodents)

Potential Effects	- Fungi and bacteria could cause the loss, staining, and weakening of the primary support, and attract insects. - Information could be lost on the lignin-containing paper surfaces from grazing silverfish or book lice and throughout the text block from wood borers. Book lice or dermestids could feed on the tight back binding adhesive, causing structural deterioration. - Mice or rats could chew on or gather materials for nesting from the book, causing damage and structural deterioration. Feces, urine, and trail marks could cause acidification, staining, and attract insects. - All pests could cause the book to pose as a health hazard to users.
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Degree of Sensitivity	MEDIUM: Despite being primarily composed of organic materials, the current condition of the book does not change its sensitivity to pests, keeping the risk of pest damage at a moderate degree. The book is currently being stored in an environment that does not significantly foster mould growth nor attracts pests.
Impact on Value	Historical value and intrinsic value would both drastically decrease with the chewing, grazing, and growth of pests, due to the loss of information. With the book as a potential health hazard, both values would also significantly decrease by detracting from historical examination or consultation, and exhibit.

D. Use and Handling

Potential Effects	- Over time pressed flowers and bookmarks placed inside the book (transfer pollutants) could damage and weaken both the low-quality text block pages and the ephemera through discolouration and/ or acidification. - Shelf removal by pulling on the head band of the spine could cause chipping of the imitation leather and the gilt detailing that indicates the title and author on the spine, and/or deterioration of the tight back binding (possible text block and cover separation). - The book could suffer abrasions on the surface and corners of the imitation leather, and on the gilt edges from friction with other books, objects, and shelving. - Opening further than the tight back binding allows could cause the spine to break, cracks in the adhesive, page loss, and creasing of the imitation leather. The thin and short-fibred text block paper could also crease or tear with use and handling.
Degree of Sensitivity	HIGH: The current condition of the book with the chipping and flaking of the imitation leather on the spine, missing head and tail bands, the shelf wear on bottom corner of gilt edges, the abrasions on the cover, and the broken spine in multiple locations between signatures, makes the book highly sensitive to further damage and deterioration with use and handling. Further damage could include the complete loss of information on the spine (gilt titling) and of already loose pages and the detached covers, resulting in dissociation.
Impact on Value	Historical value would be enhanced significantly by displaying the low-quality materials and exposing the poor construction of the sewn and glued tight back binding on the spine and at breaks between in signatures. It also shows the popular use of this specific book. However, at the same time historical value and intrinsic value could also drastically decrease with the loss of information (loose pages and detached cover boards). Intrinsic value would significantly decrease as the gilt detailing would continue to flake, the gilt edges would be abraded, and the illustrated plates would be highly sensitive to detachment.

E. Storage Materials and Techniques

Potential Effects	- Peroxides, resins, pitch and acidic products in wooden shelves could seep out and cause deterioration over time. Chemically unstable finishes on shelves could cause weakening of the organic primary supports from off-gassing. - Inadequate bookends (i.e. narrow, rough surfaces) could cause abrasions on the imitation leather and tearing and creasing of the thin text block pages. Shelving with large volumes could cause the pocket book to be wedged at the back of the shelf. - Paper-based box storage materials containing acid or lignin may cause deterioration of the primary supports. As a small book, storage in a larger box without foam, could cause abrasions on the imitation leather cover and the gilt edges from shifting.
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	• Acidic, thick, and rigid plastic enclosures for the pressed flowers could cause damage to the adjacent signature pages. • The text block and tight back binding of the book could sway and become distorted over time if not shelved upright and vertically or horizontally (i.e. on fore-edge). Tight storage could cause abrasions to the cover or separation of the binding and text block.
Degree of Sensitivity	HIGH: The broken spine and detached covers has significantly increased its degree of sensitivity to storage materials and techniques. The book was previously stored vertically on a bookshelf and jammed between significantly larger volumes. With these damages and the pocket-size of the book, continuing to store the book vertically (rather than horizontally) with insufficient support and different types and sizes of objects would cause further deterioration of the binding.
Impact on Value	Historical value and intrinsic value would significantly decrease with the loss of the cover boards due to insufficient storage practices. Historical value would slightly increase by displaying the challenges of storage techniques for pocket books. Intrinsic value would decrease due to superficial abrasions on the cover and on the gilt edges.

F. Display Materials and Techniques

Potential Effects	• Exposure to visible light or UV radiation (sunlight from windows or fluorescent lights) that is over 50 Lux and longer than a period of 3 months could cause the darkening of the light cream and white text block paper if in an open position. If closed, the burgundy imitation leather cover could fade over time. This damage would also cause weakening and embrittlement of the thin paper. • Gaseous emissions from acidic woods, sealants, paints, adhesives, and display fabrics could weaken the light cream and white text block paper and binding adhesive. • Direct contact of the book with coloured display fabrics that are not lightfast or non-fugitive could cause discolouration. • Incorrect environmental conditions, dust and dirt, and fatty acids from people's fingerprints could also cause discolouration and abrasions on the burgundy cover, gilt edges, and text block paper, and the deterioration of the structure. • The pocket-sized book could also be stolen or vandalized if not secure. • Displaying the book vertically could cause the spine to sway and binding to deteriorate. If displayed open, opening it further than the binding allows and without adequate mounts or wedges could cause stress on the tight back binding and breaks in the spine.
Degree of Sensitivity	HIGH: The current condition of the book with a broken spine, darkening edges and yellowing signature pages, loose pages, and detached cover boards, greatly increases its sensitivity to display materials and techniques (especially if displayed open). The small size of the book and its detachments make it vulnerable to thieves. Security, monitoring of environmental conditions, and the use of sealed and chemically stable support materials could work to reduce potential damage and slow deterioration.
Impact on Value	Historical value would gradually and moderately increase over time through the demonstration of the effects of UV radiation and pollutants on the low-quality paper, especially if displayed open. Displaying the book vertically and/or with insufficient support would more visibly and immediately display the low-quality of the construction, enhancing historical value. Intrinsic value would gradually decrease with incorrect display materials and techniques that would cause the superficial discolouration and stress on the spine. Both values would completely diminish with theft and vandalism.

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