

**BOOK CONSERVATION AND TREATMENT RECORD****Library of Congress – Conservation Division**

**Project Number & Name:** 3628, Encyclopedie, ou Dictionnaire Raisonne des Sciences, des Arts et des Metiers., Tome Dixieme, MAM - MY

**Division:** Rare Book and Special Collections **Date In:** 02/25/2025

**Division Contact:** Marianna Stell **Date Out:**

**Conservator(s):** Brittany Murray **Examination Date:** 02/26/2025

**I.D./Call number:** AE25.E56

**Title:** Encyclopedie, ou Dictionnaire Raisonne des Sciences, des Arts et des Metiers., Tome Dixieme, MAM - MY

**Author:** Denis Diderot

**Imprint:** À Livourne: De l'imprimerie des éditeurs, 1773.

**Alternative Format:** None.

**Existing Container:** None.

**Identifying Marks:** Front pastedown: Binder's ticket, "Bound by R.Aitken, at Pope's Head, Philadelphia", top left corner; LC Rare Book Collections bookplate, center; LC bookplate with call number, "AE25.E56, Rare Book Coll," inscribed in graphite at center; Governour Morris bookplate in center.  
Title page, verso: "AE25.E56" in graphite towards head by gutter  
Page 1: Perforated LC stamp at tail

**Background Information: (significance, provenance, set of volumes, labels, stamps, inscription):**

*Encyclopedie, ou Dictionnaire Raisonne des Sciences, des Arts et des Méti*ers is a thirty-five-volume reference book published in Paris between 1751 and 1780 by Andre Le Breton and edited by Denis Diderot. A collaborative work, the Encyclopedie was written by a group of learned men with the intention of understanding the world through reason, intellectual exchange, and the scientific method. The epitome of Enlightenment ideals, the compilation and dissemination of knowledge found in these books promoted the kind of progressive thinking that eventually led to the French Revolution. Additionally, a goal for publishing the Encyclopedie was to provide a practical reference for tradesmen, whose professions were outlined and finely illustrated in detail throughout the volumes.

This set of Diderot volumes belonged to Governour Morris I, a founding father of the United States. Morris wrote the preamble to the Constitution and is also known as "The Penman of the Constitution". In Philadelphia, he was appointed assistant superintendent of finance (1781–1785) and was a Pennsylvania delegate to the Constitutional Convention in 1787. Presumably, Morris had his reference set bound by Robert Aitken, a Philadelphia printer, binder, and bookseller. He is known for publishing the first complete bible in the United States, also referred to as the Aitken Bible.

**DESCRIPTION AND CONDITION:**

**Cover Dimensions:** **Height:** 42 cm **Width:** 28 cm **Thickness:** 6 cm

**Textblock Dimensions:** **Height:** 41.3 cm **Width:** 27.1 cm **Thickness:** 4.9 cm

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**Collation (signatures, format, leaves, pagination, foliation, and inserts):**Signature: A<sup>2</sup>-Z<sup>2</sup>; Aa<sup>2</sup>-Zz<sup>2</sup>; Aaa<sup>2</sup>-Zzz<sup>2</sup>; Aaaa<sup>2</sup>-Zzzz<sup>2</sup>; AAaaa<sup>2</sup>-PPppp

Format: Folio

Leaves: 4 endleaves, 2 titles leaves, and 423 text leaves: 429 Total leaves

Pagination: 845 numbered text pages

Foliation: Folio in twos

Inserts: None

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**General Description:**

Binding: The encyclopedia is a tight back, in-boards binding, fully covered in brown calf skin. The boards have been back cornered. The leather has been decorated in the "tree calf" or "tree marble" style; the calfskin was chemically marbled until an image of a tree trunk and branches emerged in the center of the upper and lower covers. The board faces have scrolling gold tooling framing the boards, as do the board edges. The spine has a smooth, flat profile, and is heavily gold tooled with four panels of flowering urns, filigreed corners, and grapes. The title of the text was tooled onto a red leather onlay in the second panel of the spine; a black onlay surrounds a red oval onlay with the volume number tooled in the center in the fourth panel; and a thin strip of black leather onlay has the alphabetical range of the encyclopedia tooled in the center, between the sixth and seventh panels. The endsheets are marbled in a red, black, yellow, green, and pink stone pattern. Multiple strips of the same marbled paper were adhered to the front hinge of the front endsheet. The front pastedown has Robert Aitken's binding ticket at the upper left corner (Bound by R. Aitken at Pope's head, Philadelphia), an LC Rare Book collection bookplate, and the plate of Gouverneur Morris below. There are orange and dark green endband threads protruding from the head and tail of the book, but no other evidence remains. A blue silk ribbon bookmark is between pages 520 and 521.

Textblock: The textblock is composed of handmade paper with discernable laid and chain lines, of varying shades throughout the book. The textblock was sewn on five thin recessed cords laced through the boards. The sewing pattern is not discernable because the spine has been gently rounded but heavily backed, resulting in substantial shoulders. The printer's ink is a rich brown-black tone that contrasts well with the underlying cream-colored support.

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**General Condition:**

Binding: The binding is in poor, unstable condition. Both boards are completely detached, and the sewing supports are exposed. The front endsheet has completely come away with the front board, and the back endsheet has split along the hinge. The calfskin leather displays signs of red rot, and easily powders away when handled. A pronounced crack in the leather runs along the length of the spine, and the endcaps are missing. The three leather onlays on the spine are damaged, and the onlay that indicates the range of letters contained in the encyclopedia is lifting and partially missing. The leather along the board edges is abraded, exposing the laminate board below. The exposed corners are soft and delaminating. Minor scratches, gouges, and accretions are present across the surface of both boards. The gold tooling on the spine, along the edges of the boards, and framing the boards is slightly abraded, with more damage to the tooling on the spine due to the deterioration of the underlying leather. There is thin application of a now darkened leather conditioner visible on the front and back boards.

Textblock: The textblock is in fair, stable condition. The paper is stained and discolored throughout but remains flexible. Acid burn is present on the first two pages at the beginning and end of the text, due to contact with the leather turn ins covering the boards. There is a striking color differential between the sheets of the text, with noticeable contrast between pages 248 and 570. The printer's ink is in good, stable condition.

**BOARD**

<b>Board:</b>	<b>Covering Materials:</b>	<b>Binding Style:</b>
<input type="checkbox"/> missing	<input checked="" type="checkbox"/> full	<input checked="" type="checkbox"/> tight back
<input type="checkbox"/> wood	<input type="checkbox"/> half	<input type="checkbox"/> case
<input type="checkbox"/> paste-board	<input type="checkbox"/> quarter	<input type="checkbox"/> laced-on
<input type="checkbox"/> waterleaf / pulp	<input type="checkbox"/> bookcloth	<input type="checkbox"/> laced case
<input checked="" type="checkbox"/> binders board	<input type="checkbox"/> textile	<input checked="" type="checkbox"/> tight joint
<input type="checkbox"/> other	<input type="checkbox"/> paper	<input type="checkbox"/> French joint
<input checked="" type="checkbox"/> back cornered	<input type="checkbox"/> cloth sides	<input checked="" type="checkbox"/> laced-in
<input type="checkbox"/> shaped	<input type="checkbox"/> vellum sides	<input type="checkbox"/> cords
<input type="checkbox"/> tying-up marks	<input type="checkbox"/> paper sides/dec	<input type="checkbox"/> tapes
		<input type="checkbox"/> thongs

**SPINE**

<b>Spine Shape:</b>	<b>Upper Joint:</b>	<b>Lower Joint:</b>	<b>Endcaps:</b>	<b>Diagram(s):</b>
<input checked="" type="checkbox"/> flat	<input type="checkbox"/> intact	<input type="checkbox"/> intact	<input type="checkbox"/> folded	
<input checked="" type="checkbox"/> rounded	<input type="checkbox"/> broken	<input type="checkbox"/> broken	<input type="checkbox"/> Shaped	
<input type="checkbox"/> uneven	<input type="checkbox"/> board loose	<input type="checkbox"/> board loose	<input type="checkbox"/> Sewn	
<input checked="" type="checkbox"/> backed	<input checked="" type="checkbox"/> board detached	<input checked="" type="checkbox"/> board detached	<input type="checkbox"/> Repaired	
<input type="checkbox"/> concave			<input checked="" type="checkbox"/> Missing	

**TITLE**

<b>Titling Style:</b>	<b>Medium:</b>	<b>Location:</b>	<b>Tooling Style:</b>	<b>Tooling Location:</b>
<input type="checkbox"/> none	<input type="checkbox"/> ink	<input type="checkbox"/> upper board	<input type="checkbox"/> none	<input checked="" type="checkbox"/> upper board
<input type="checkbox"/> manuscript	<input type="checkbox"/> blind	<input type="checkbox"/> lower board	<input type="checkbox"/> blind	<input checked="" type="checkbox"/> lower board
<input checked="" type="checkbox"/> tooled	<input checked="" type="checkbox"/> gilt	<input checked="" type="checkbox"/> spine	<input checked="" type="checkbox"/> gilt	<input checked="" type="checkbox"/> board edges
<input type="checkbox"/> label		<input type="checkbox"/> edge of textblock	<input type="checkbox"/> pigment	<input type="checkbox"/> endcaps
			<input type="checkbox"/> other	<input type="checkbox"/> turn-ins
				<input checked="" type="checkbox"/> spine

Title on spine: Encyclopedie Ou Dictionaire des Sciences

**FASTENINGS AND FURNITURE**

<b>Fastening Type:</b>	<b>Fastening Location:</b>	<b>Type of hinge:</b>	<b>Furniture:</b>	<b>Diagram(s):</b>
<input checked="" type="checkbox"/> none	<input type="checkbox"/> hinges from lower board	<input type="checkbox"/> metal	<input type="checkbox"/> none	
<input type="checkbox"/> clasps	<input type="checkbox"/> hinges from upper board	<input type="checkbox"/> leather strap	<input type="checkbox"/> corner/center pcs.	
<input type="checkbox"/> side pin			<input type="checkbox"/> Bosses	
<input type="checkbox"/> textile tie				
<input type="checkbox"/> thongs				

**ENDBANDS**

Spine Lining:	Endbands:	Core:	Decorative elements:	Diagram(s):
<input type="checkbox"/> none	<input type="checkbox"/> none	<input type="checkbox"/> single core	<input type="checkbox"/> linen thread	
<input type="checkbox"/> parchment patches	<input type="checkbox"/> both present	<input type="checkbox"/> double core	<input checked="" type="checkbox"/> silk thread	
<input type="checkbox"/> paper	<input type="checkbox"/> one present	<input type="checkbox"/> sewn	<input type="checkbox"/> tawed	
<input type="checkbox"/> textile	<input type="checkbox"/> head	<input type="checkbox"/> # of tie downs	<input type="checkbox"/> leather	
<input type="checkbox"/> leather	<input type="checkbox"/> tail	<input type="checkbox"/> stuck-on	<input type="checkbox"/> textile	
<input checked="" type="checkbox"/> cannot see	<input checked="" type="checkbox"/> evidence present	<input type="checkbox"/> flat/round		
	<input type="checkbox"/> cut off	<input type="checkbox"/> tawed		
		<input type="checkbox"/> tanned		
		<input type="checkbox"/> cord		
		<input type="checkbox"/> parchment	colors:	<u>Orange and green</u>
		<input type="checkbox"/> paper	endband style:	<u>Two-color front bead</u>

**SEWING**

Sewing supports:	Sewing:	Textblock edges:	Textblock:	Diagram(s):
<input type="checkbox"/> unsupported	<input checked="" type="checkbox"/> original	<input type="checkbox"/> trimmed	<input checked="" type="checkbox"/> folio	
<input checked="" type="checkbox"/> supported	<input type="checkbox"/> repaired	<input type="checkbox"/> untrimmed	<input type="checkbox"/> Quarto	
<input checked="" type="checkbox"/> single	<input type="checkbox"/> resewn	<input type="checkbox"/> deckles h/t/fe	<input type="checkbox"/> Octavo	
<input type="checkbox"/> double	<input type="checkbox"/> multiple sewings	<input checked="" type="checkbox"/> colored: green	<input type="checkbox"/> other:	
<input type="checkbox"/> tawed	<input type="checkbox"/> all-along	<input type="checkbox"/> gilt	<input checked="" type="checkbox"/> Intact	
<input type="checkbox"/> tanned	<input type="checkbox"/> abbreviated	<input type="checkbox"/> speckled	<input type="checkbox"/> dis-bound	
<input checked="" type="checkbox"/> cord	<input checked="" type="checkbox"/> sawn-in	<input type="checkbox"/> tooled		
<input type="checkbox"/> parchment	<input type="checkbox"/> notched	<input type="checkbox"/> gaufered		
<input type="checkbox"/> textile	<input type="checkbox"/> oversewn			
<input type="checkbox"/> hemp	<input type="checkbox"/> silk thread			
	<input checked="" type="checkbox"/> linen thread			
	<input type="checkbox"/> cotton thread			
	<input type="checkbox"/> other			

**TEXTBLOCK**

Textblock materials:	Method of marking:	Media:	Paper condition:	Diagram(s):
<input type="checkbox"/> parchment	<input type="checkbox"/> manuscript	<input type="checkbox"/> iron-gall ink	<input type="checkbox"/> brittle	
<input checked="" type="checkbox"/> paper	<input type="checkbox"/> woodblock	<input type="checkbox"/> other ink, color:	<input checked="" type="checkbox"/> Stained	
<input type="checkbox"/> combination	<input checked="" type="checkbox"/> printed	<input type="checkbox"/> graphite	<input type="checkbox"/> Tears	
<input type="checkbox"/> watermark	<input type="checkbox"/> engraving	<input checked="" type="checkbox"/> printer's ink	<input type="checkbox"/> Losses	
<input checked="" type="checkbox"/> handmade	<input type="checkbox"/> etching	<input type="checkbox"/> printer's crayons	<input type="checkbox"/> Accretions	
<input type="checkbox"/> machine made	<input type="checkbox"/> lithography	<input type="checkbox"/> colored ink	<input type="checkbox"/> Tape	
<input checked="" type="checkbox"/> laid	<input type="checkbox"/> plate mark	<input type="checkbox"/> watercolor	<input type="checkbox"/> Attachments	
<input type="checkbox"/> wove	<input type="checkbox"/> hand colored	<input type="checkbox"/> gouache	<input type="checkbox"/> lined/silked	
<input type="checkbox"/> other	<input type="checkbox"/> other	<input type="checkbox"/> other	<input type="checkbox"/> Other	

**ENDSHEETS**

<b>Endleaves:</b>	<b>Construction:</b>	<b>Material:</b>	<b>Diagram(s):</b>
<input type="checkbox"/> none	<input type="checkbox"/> hooked	<input checked="" type="checkbox"/> Paper (stone marble pattern)	
<input type="checkbox"/> same as textblock	<input type="checkbox"/> whipstiched	<input type="checkbox"/> Leather	
<input checked="" type="checkbox"/> paper	<input checked="" type="checkbox"/> sewn gathering	<input type="checkbox"/> Cloth	
	<input type="checkbox"/> tipped on	<input type="checkbox"/> Other	

**TREATMENT RATIONALE:**

The purpose of this treatment is to repair Diderot's Encyclopedie, vol. 10. The boards have completely detached and the original leather along the spine is cracked and flaking away. The book cannot be safely used by library patrons in its current state. This treatment is part of an ongoing conservation campaign to repair this set of volumes, so there is an already established treatment protocol and aesthetic to consider.

**TREATMENT PROPOSAL:**

1. Take before and after treatment photographs.
2. Surface clean and consolidate the original spine leather.
3. Face the spine leather with a thin tissue and Klucel M in isopropanol. Lift and retain the spine.
4. Remove spine linings and adhesive residue with a methylcellulose poultice and spatula.
5. Consolidate the spine with wheat starch paste.
6. Adhere a reversibility layer with wheat starch paste, followed by a transverse textile lining with a more robust adhesive.
7. Sew two-color front bead endbands and adhere to the head and tail of the textblock.
8. Lift the pastedowns along the spine edge of both boards, followed by the leather on the exterior.
9. Prepare new spine leather and reback the textblock.
10. Adhere the lifted portions of the boards back down.
11. Repair joint using laser printed Japanese tissue, using an image from the original marbled endsheets.
12. Adhere the lifted spine label if usable. If the original leather can't be used, stamp new labels and tool decorative elements accordingly.

**TREATMENT RISKS:**

Losses to the original covering leather on the spine and boards is possible due to the brittle and deteriorated nature of the material.

<b>Photography:</b>	<b>Testing:</b>	<b>Testing Results:</b>
<input checked="" type="checkbox"/> BT <input checked="" type="checkbox"/> AT	<input type="checkbox"/> pH	
<input type="checkbox"/> slides	<input type="checkbox"/> media	
<input checked="" type="checkbox"/> digital	<input type="checkbox"/> phloroglucinol	
<input type="checkbox"/> transmitted	<input type="checkbox"/> ninhydrin	
<input type="checkbox"/> raking	<input type="checkbox"/> potassium iodide	

**Textblock: (identify all materials, manufacturers, and solution strengths)**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> fixing/consolidation   | The spine was gently cleaned with a latex free polyurethane sponge and then consolidated with 3% Klucel M in ethanol.  |
| <input checked="" type="checkbox"/> drycleaning            | The binding was gently cleaned with a soft brush and latex-free polyurethane sponges.  |
| <input checked="" type="checkbox"/> removal of attachments | The spine was faced with RK-5 machine made tissue precoated with 3% Klucel M in isopropanol, adhered with 3% Klucel M in isopropanol. The spine was lifted and retained. |
| <input type="checkbox"/> washing                           |  |
| <input type="checkbox"/> bleaching/stain removal           |  |
| <input type="checkbox"/> alkalize                          |  |
| <input type="checkbox"/> size                              |  |
| <input type="checkbox"/> mend                              |  |
| <input type="checkbox"/> guard                             |  |
| <input type="checkbox"/> line                              |  |
| <input type="checkbox"/> leaf cast                         |  |
| <input type="checkbox"/> flattening                        |  |

**Binding:**

- |   |  |
|---|--|
| <input type="checkbox"/> endpaper construction                            |  |
| <input type="checkbox"/> sewing   |  |
| <input checked="" type="checkbox"/> textblock consolidation/spine shaping | Original spine linings and adhesive were reduced with a 4% A4M methylcellulose poultice and a spatula. After the spine was allowed to dry, it was consolidated with wheat starch paste.  |
| <input checked="" type="checkbox"/> endbands                              | Two-color front bead endbands in red and green were sewn on a single cord core wrapped in airplane linen. The stuck-on endbands were adhered to the spine with a spine with a 1:1 4% A4M methylcellulose and Lascaux 498 HV.   |
| <input checked="" type="checkbox"/> spine linings and adhesives           | The spine was lined with two layers of Hanji 1308 adhered with wheat starch paste. A transverse lining of airplane linen cut on the bias was adhered to the spine using a 1:1 4% A4M methylcellulose and Lascaux 498 HV mix. A one on and two off hollow tube of Griffin Mill wove cream colored paper was adhered to the spine with the same adhesive mixture.  |
| <input checked="" type="checkbox"/> board attachment and shaping          | The leather along the spine edge of the boards was lifted, as were the pastedowns.   |
| <input checked="" type="checkbox"/> covering                              | The spine was rebacked with light brown Hewit speckled calf that was pared and dyed with Hewit and Sons leather dyes to achieve a sympathetic color to the original leather. The leather was adhered with wheat starch paste. When the repair was dry, the lifted original material was adhered down. The hinges of the book were covered with Hanji 1308 with a laser printed image of the marbled endsheets. |
| <input checked="" type="checkbox"/> finishing                             | A red goat skin label was prepared and stamped with the title of the book, "Encyclopedie Ou Dictionnaire des Sciences". A second red label was made with the volume number "X". A black label was similarly prepared, and a decorative oval frame was tooled into the center using gold foil.  |

The red label "X" was inlaid into the black frame. Both labels were adhered to the spine of the book: the title in the second panel, and the number of the volume in the fourth panel. Double lines were tooled in gold foil at the head and tail of the book, and around the labels.

Housing

An archival box was made for the repaired volume. Labels were printed on antique Dove Gray paper, sized with methyl cellulose, and adhered to the spine of the housing with PVA.

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**Titling information:** ENCYCLOPEDIA § DIDEROT, VOL 10, Copy 1 / FOLIO AE25.E56, Copy 1, RBSCD

Enclosure: Gray clamshell box.

Object:

**Treatment:**

1. Before treatment photographs were taken.
2. The spine was gently cleaned with a latex free polyurethane sponge and then consolidated with 3% Klucel M in ethanol.
3. The spine was faced with RK-5 machine made tissue precoated with 3% Klucel M in isopropanol, adhered with 3% Klucel M in isopropanol.
4. Approximately 35 mm of the pastedown and a thin layer of board was lifted at the spine edge of the upper and lower boards. The leather covering material and a thin layer of board was also lifted along the spine edge.
5. The remaining leather residue on the spine was mechanically reduced, and a 4% A4M methylcellulose poultice was applied to swell the underlying hide glue. The adhesive layer was mechanically reduced with a microspatula.
6. The spine of the book was consolidated with undiluted wheat starch paste and then lined with two layers of Hanji 1308 tissue paper adhered with wheat starch paste.
7. A transverse lining of airplane linen cut on the bias was adhered to the spine using a 1:1 4% A4M methylcellulose and Lascaux 498 HV mix.
8. Two color front bead endbands in red and green silk thread were sewn off the book, on airplane linen wrapped around a 3-ply linen cord core. The core and linen were adhered together with Lascaux 498 HV. It was adhered to the spine with 1:1 4% A4M methylcellulose and Lascaux 498 HV.
9. A one on and two off hollow tube of Griffin Mill wove cream colored paper was adhered to the spine with a 1:1 4% A4M methylcellulose and Lascaux 498 HV mix.
10. The flyleaf attached to the upper board was split along the center fold. The delaminating marbled paper layers that were originally adhered over the fold were consolidated using undiluted wheat starch paste. After the paper was dry, approximately 1 mm of the sheet was trimmed along the spine edge, to create an even edge for hinging.
11. A thin strip of Usu Gami 12 gsm was hinged onto the front flyleaf using wheat starch paste and adhered over the shoulder and under the spine linings of the textblock.
12. Light brown Hewit speckled calf was pared and then dyed with Hewit and Sons leather dyes to achieve a sympathetic color to the original leather.
13. The rebacking was done with the boards off the book, and then the textblock was "cased in". Undiluted wheat starch paste was the adhesive used during this step.
14. The spine leather of the textblock was considerably darker when it was fully dry.
15. The textile hinges on the interior of the book were adhered to the board using a 1:1 4% A4M

methylcellulose and Lascaux 498 HV mix. The original marbled paper pastedowns were adhered down using the same adhesive. The lifted leather on the exterior of the book was pasted down with Lascaux 498 HV.

16. Marbled paper hinges were printed onto medium weight Hanji. The image was taken from the before treatment photograph of the back pastedown. The hinges were pasted down with wheat starch paste.
17. A red goat skin label was thinly pared, pressed between tins, and backed with a thin Japanese tissue paper. The title of the book, "Encyclopedie Ou Dictionaire des Sciences" was stamped in gold foil using the PraGnant heat stamper. A second red label was made with the volume number "X". A black label was similarly prepared, and a decorative oval frame was tooled into the center using gold foil.
18. The interior of the oval frame was removed with a scalpel and the "X" was centered and then cut out. The red label was inlaid into the black label, and the label was backed with medium weight Hanji and wheat starch paste.
19. The labels were adhered to the spine of the book, the title in the second panel, and the number of the volume in the fourth panel, using wheat starch paste.
20. Double lines were tooled in gold foil at the head of the book, and above and below each label. Four lines were tooled at the tail.
21. The original leather spine was adhered to a sheet of medium weight Hanji using Lascaux 498 HV. The facing was removed with ethanol. Any lifting leather was consolidated with 2% Klucel M in ethanol. The spine was encapsulated in mylar to be stored with the book.
22. A gray clamshell box was made for the volume. Labels for the box were printed on Antique Dove Gray western paper and adhered to the spine with PVA.
23. After treatment photographs were taken.