

From mutiny to eternity

The conservation of Lt. William Bligh's *Bounty* logbooks

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Abstract

Lieutenant William Bligh's two *Bounty* logbooks were conserved at Arlab Australia in April 2005. Famous for the mutiny that occurred on His Majesty's Ship in 1789, Lt. Bligh's logbooks chronicle his relationship with mutineer Fletcher Christian and his successful navigation of the *Bounty's* launch for 48 days without charts and with only limited food.

During conservation it was discovered that the logbooks contain not only written history but also evidence of additional sewn sections and pasted-in leaves. These additional pages have different watermarks to the paper of the original binding. Unfortunately they were also the cause of structural weakening and damage. Because of the additions, volume two in particular was difficult to handle without compromising its strength.

The discoveries affect the way the volumes can be historically studied. It was essential that the conservation treatment be sensitive to these additions while structurally strengthening the volumes. This paper discusses the ethical dilemma of conserving Bligh's logbooks while retaining the historical material evidence.

Introduction

Lieutenant William Bligh, commander of His Majesty's Ship *Bounty*, left England on 23 December 1787 to acquire the breadfruit plant *Artocarpus altilis* from Tahiti for the British colonies of the West Indies. His journey was supported by Sir Joseph Banks and was the first botanical expedition commissioned by the British Government. The voyage is infamous for the mutiny on the *Bounty*, which took place off Tahiti on April 28 1789.

Master's Mate Fletcher Christian expelled Bligh and 18 of the crew to the *Bounty's* 23 ft open launch without charts and with only limited food. Bligh successfully navigated the launch for 48 days and 3,618 miles with only the loss of only one man.

Bligh carried a personal notebook and the ship's two logbooks with him on the entire journey. The official logbooks were started on 16 August 1787 in volume one and ended in volume two on 13 March 1790 when Bligh landed on the Isle of Wight, England. It is reported that Bligh handed the logbooks to King George in person just days later (Alexander 2003: p164).

The two bound logbooks of the *Bounty* were presented to the New South Wales Library by William Bligh's grandson William Russell Bligh on 29 October 1902. They were transferred from the public library to the Mitchell Library in June 1910.

Volumes one and two of Lieutenant Bligh's *Bounty* logbooks were sent to Artlab Australia for a treatment proposal by rare books conservator Anthony Zammit in May 2004. One year later the books were treated to strengthen the structure and improve the working dynamics.

Condition and findings: Volume one

Volume one was a square-back-style full-vellum binding measuring 210×355 mm. The cover boards were millboard of approximately 3,000 µm thickness. A square blind-tooling design had been impressed on the vellum cover. The title '*The Bounty Log*' was handwritten in iron gall ink at the head of the spine.

The 'all-along' sewing of the text block was completed on four vellum supports with linen sewing thread. The ends of these supports were used as lacings to tie down the outer front and back covers. The headband vellum strips extensions were also used as lacing to tie down the head and tail of the cover; however they were not laced-in at the same time as the ties of the text-block sewing supports. This is clearly evident underneath the pastedown where the board lining paper has been torn and is partly removed to allow the vellum to lace the head and tail section of the cover.

One side only of each board had been lined with paper. The boards were distorted as they were not rigid enough to withstand the movement

of the vellum covering material. The corners on the cover were rounded and crushed inward. The vellum on the cover had splits and breaks along the joint, and the head and tail vellum ties were broken. This made the cover joints quite slack and unstable. The vellum had a patina with some stains and a small amount of wax on it.

The original sewn text block consisted of sixteen sections of six folios each. The text block had been sewn with an interlock at the end sections. Interlocking, or 'tacketing' – the sewing at the end sections – was practised believing that it would strengthen the cover and joints of the binding. However in this case it was noted that the interlock was actually causing stress and breaks in the gutter margins of the first and last sections because it was too inflexible at this sewn junction (see Figure 1).

Volume one had five pieces of heavy scrim (a heavy muslin) adhered with animal glue on the text-block spine in between the vellum sewing supports and behind the head and tail headbands. The vellum headband core was still attached to the volume, however the original silk headband had deteriorated but for tie downs found in the text block. The headband colours were warm tan and beige.



Figure 1. Original sewing of volume one with example of 'tacketing'.

The text in the volume was written in iron gall ink. Each page had been paginated with iron gall ink with the even number on the right hand side. There were ink stains throughout the text block, with the heaviest stain on pages 254a–254c.¹ The text was partially covered by the ink and there were damages and tears to the tail end of p254a. The surface of the two leaves was glossy with adhesive that had been used to bind the pages together. The text was transcribed on the next leaf over, where Bligh took the opportunity to slightly modify the script.

Volume one had two additional single folio sections tipped in with animal glue. The sections had discoloured more than the text-block paper. The text of the additional sections flowed logically with the bound pages.

Condition and findings: Volume two

Volume two was also a square vellum binding over millboard with a square blind-tool cover design. The text block consisted of sixteen sewn sections with six folios each. The text is written in iron gall ink, with diagrams on a few pages and notations written in graphite throughout the text. The text-block sewing was completed on four vellum supports that had tapered ends to lace-in the outer front and back cover. Maroon scrim was adhered to the text-block spine between the vellum supports and behind the headbands. The headband silk was missing at both ends.

Volume two's vellum cover was severely degraded and missing on all outer corners and along one edge. The corners of the boards were also degraded, one obviously severely damaged from water. The boards had buckled into a convex shape that was exposing the text block and causing stress to the joints at the head and tail of the book. There were cuts in the front vellum cover. The vellum lacings through the cover had become degraded, unthreaded or lost.

The sewing of volume two was failing in several areas. As with volume one, the 'tacketing' stitch at the end sections was too strong and created weakness in the logbook dynamics. The sewing was especially

1 When the book was paginated (possibly by Bligh) the original text block was given numerical pagination and additions (such as these pages) were given letters.

compromised where additional sections had been sewn in. The added bulk of paper created stress to the entire sewing system.

The outer folio of each section was damaged. Most folios in the sections were damaged around the sewing holes, especially because of the extra bulk and strain on the system with the addition of foreign sections. The fore-edges of the pages were also degraded and fragile.

There were two additions to volume two. One was a section with four folios, and the second was a single folio. These additional pages had been hand sewn into the text block following the third section of the original text-block sewing. The sewing was threaded through the front end papers. The folio sheets were quite damaged and torn through the fold due to the amateur sewing. The text flowed sequentially in Bligh's handwriting across the main text block through these additions. There were no pages missing or stained around the additions to suggest why extra paper was required at this point in the text block. It appears that the additions were written upon prior to being sewn into the text block, as there are several areas with letters missing. It appears that the pages were written on, sewn into the volume and then cut to fit square with the fore-edge of the text block, which cut off some of the letters.

The stub of pp55/56 was sewn in with the original binding of volume two. However, the original leaf was cut away and replaced. The stub was used as a guard to hinge in the new leaf with animal glue. The page had been cut slightly smaller than those in the text block. This leaf (pp55/56) and the pages on either side of it all have a stain of the same shape.

It is possible that the original leaf had been damaged and stained and required replacing. The text runs logically between these pages, so the information may have been transcribed almost identically. The date relating to the newer guarded leaf is 28 April 1789, the day of the mutiny. This page has uniformly discoloured. The paper is of a different stock with a different watermark compared to the rest of the text block. It is possible that the grade of paper is comparatively not as strong and therefore is inherently degrading at a faster rate.

Special findings: Watermarks

The text block of volume one and two is constructed of laid paper. Each

page has a watermark – either the letter ‘F’ or an image of a woman holding leafy flora in her left hand, a staff in her right and a shield with a cross on it beneath her. She is partially seated and is in the centre of a three-ringed oval with a crown on the top. We have named her ‘Britannia’, although her actual symbolism is currently unknown. Britannia is on one half of the folio, with the ‘F’ on the other.

The additional tipped-in folios in volume one have the same Britannia as in the text block, but have a different lettering watermark, ‘WS’. Additional sections and pages in volume two have very different watermarks compared with the original text block. The lettering on one leaf of the folio is ‘GR’. The Britannia on the other half of the folio is unlike the text-block Britannia. She is slightly smaller, the crown is placed on the lower rung of the oval shape and there are four rings in the oval instead of three.

It is difficult to accurately conclude what story the different watermarks can add to the provenance of the logbooks. It is obvious that the additional pages are not of the same batch of paper or originally sewn with the 16-section text block. Whether the papers are from a different mill or made at a different time (i.e. pre or post Bligh’s voyage) may be investigated with research into Royal Admiralty watermarks. The date(s) the different papers were added to Bligh’s volumes is currently unknown.

Special findings: Volcanic sand

Small shiny particles were found in the gutters of volume two. The small grains appeared to be blue in colour and reflective of light. The particles were examined under a microscope and appeared quite geometrical. The grains appeared oily and slick with a black-green colour, and demonstrated a small magnetism to a stainless steel probe. Professor Alan Pring of the South Australian Museum was asked help us identify the particles under the microscope. He recognized them to be hematite, volcanic sand found on the beaches of islands with a volcano.

Hematite granules were also found in areas of high-density iron gall ink on two pages of volume two: p179 and p242. The hematite in the iron gall ink blotch on p179 was microscopically photographed. The loose particles found in the gutters of the volume were observed under a

scanning electron microscope, and images showed grains with flat sides, as well as growth lines characteristic of hematite formed from volcanic activity.

The findings of hematite granules in the iron gall ink prompted us to believe that the volcanic sand may have been used as a blotting agent for Bligh's iron gall ink writings in the log. It is possible that Bligh was not well equipped for documenting his travels in the launch after he had been expelled from the *Bounty*. He may have had to improvise a blotting agent, such as volcanic sand from the island of Tofua.

However, the hematite granules are not found on dates corresponding with Bligh's journey if this theory is true. Page 179 is dated 20–21 July 1789. Bligh at this stage had already landed with his small party on the launch in the Dutch settlement of Coupang (Kupang), Timor. Although this island does have a volcano, Gunung Bromo, it is difficult to believe that a Lieutenant such as Bligh would still be stooping to the ground to use volcanic sand as a blotter while in the hospitality of the Dutch. The second date where hematite was found in the iron gall ink was 19 and 20 August 1789, p241. According to Alexander (2003: p157) Bligh was leaving Coupang for Batavia (Jakarta), Java, on the *Resource* on 20 August. Although an exciting find in volume two, the origin of the hematite and the part it plays in the logbooks' provenance is therefore uncertain.

Conservation treatment: Volume one

The conservation treatment of volume one was conducted with a high priority placed on the use of original materials. As volume two required more extensive treatment, it was important to retain as much historical information as possible in volume one so it could be viewed as an example of original materials and techniques for future reference.

The cover was removed to repair and access the sewing structure of volume one. The pastedown was removed from the boards by dampening the paper with 50:50 ethanol:water through Gore-tex and applying a heated spatula. The endpaper peeled off easily and exposed the underlying paper lining on the millboard (see Figure 2).

The vellum ties were carefully released from the boards and pulled back through the cover so that the unrestricted text block could be removed.



Figure 2. Volume one endpapers removed from cover.

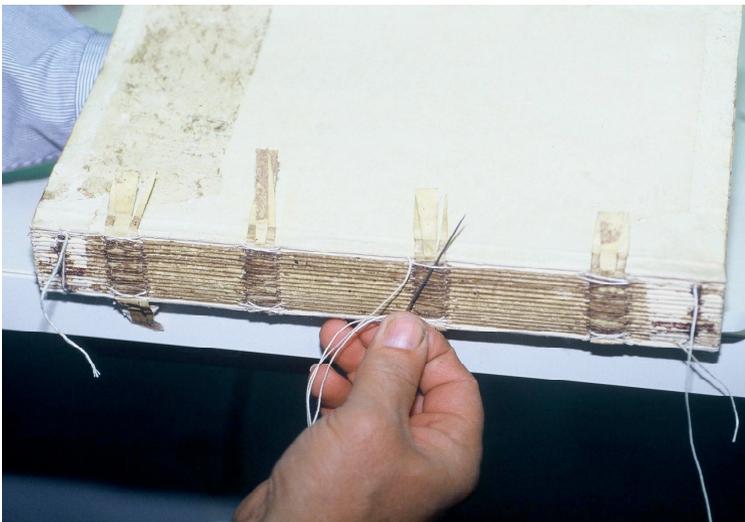


Figure 3. Repairing the weak sewing of volume one at the two end sections.

The cover boards immediately relaxed to a flat position. The vellum was carefully released from the edges of each board to expose the corners of the millboard. The board corners were consolidated with wheat starch paste and covered with prepared vellum. The vellum was thinned and coloured with iron-bark dye before being adhered to the cover with rabbit skin glue.

The text block had little conservation treatment. The gutters were not cleaned so as to leave as much material evidence as possible with the book. The scrim lining was detached from the text block but the animal skin glue was not removed. Weak areas and breaks in the text block were strengthened by sewing a linked, alkaline-washed linen thread through the two end sections of each side (see Figure 3).

A new headband was sewn around a vellum core. New headbands were made using the original colours of beige and warm tan linen. Linen was chosen over silk as it is much more durable. The linen was washed in alkaline solution and then dyed with iron-bark dye to match the original headband colours. We were not able to identify the original pattern, so a common style of the 18th century was chosen. The silk remnants of the original headband were retained inside the text block in their original positions. They have been protected with a thin film of Japanese tissue and wheat starch paste.

The text block was lined with the original heavy scrim at the head and tail of the volume, and new brown scrim between the slips. A paper lining was adhered to the spine in preparation for the covers to be put back on. Conservator Anthony Zammit wrote a note on the paper lining for any person who may have to take this book down in the distant future. He documented the new materials he had used on the book and the original materials that were left in the structure.

The vellum cover was prepared to lace-in the text block. The new headband vellum core was used as the head and tail ties on the cover. The pastedown and endpapers were then adhered to the board over the ties and vellum edges using wheat starch paste. The covers remained flat during the final stages of conservation treatment. The overall conservation treatment of this volume strengthened the text-block sewing and repaired the cover to make it more stable.

Conservation treatment: Volume two

The structure of volume two was failing and the aim of treatment was to prevent further damage occurring with use. It was therefore proposed to take down the book, repair the cover and re sew the text block to include the additions without changing the continuity or logic of the text. This meant that the historical artefact, including the way the additions were sewn into the text block, perhaps by Bligh himself, had to be compromised.

There were many ethical considerations to the changes to be made. It was important to correctly document in writing and with photography how the volume was constructed prior to treatment. It was critical to repair the book so that it would retain strength with use for many years to come, but to use materials that were obviously not original so historical evidence would not be misinterpreted in the future. It was also vital to make the repairs reversible where possible. Original materials were used where the mechanical strength would not be compromised with the future use of the book.

The cover of volume two was removed by mechanically releasing the pastedown with ethanol and water. Heat was used in a similar way to the treatment on volume one. The vellum cover was then removed from the boards. The millboards were lined on both sides with laid paper and wheat starch paste and flattened in a press to dry. The four degraded corners were then consolidated with wheat starch paste and covered with two linings of iron-bark-dyed vellum adhered with rabbit skin glue. The vellum cover was reattached on the boards on the turn-ins with wheat starch paste. This technique allows the vellum to move freely without interacting adversely with the boards.

The lining and animal glue were removed from the text-block spine. After the stitching of the text block had been undone, the folios were repaired down the fold with a fine lining of feathered Japanese paper. Leaves with weak and degrading fore-edges were strengthened with Japanese paper infills and wheat starch paste. The middle folio of each section was treated first so that all sections could be measured flush down the fore-edge. To prevent swelling and bulk the sections were placed in a press to dry.

To aid in the rebinding of the volume the additional hand-sewn section

had to be completely split. The folio pages were already almost completely torn down the fold because of the amateur sewing. The four folios of the section were split down the damaged fold and repaired with wide Japanese paper guards so the resewing of the volume could include the new addition flush with the fore-edge. The wide guards also visually distinguished the additional pages from the original text block. The following single folio addition was guarded onto the last leaf.

The treatment of the hand-sewn additions was necessary to ensure that the text still kept its logical sequence. The decision to completely split the folio was difficult. Unfortunately, however, to create a stronger structure it was necessary to compromise the original material for strength and continuity.

The original sewing was not duplicated. It was not favored as it had created an obvious weakness in the sewing matrix and damaged the working dynamics of the entire volume. The all-along sewing technique was chosen, with a continuous interlocking system on four new vellum supports. Thin Japanese *gampi* paper between the folio's spine edge was sewn with the text block. This prevented adhesive from being applied directly to the text paper (see Figure 4).

The text-block spine lining was copied from the original: three strips of heavy scrim were adhered to the spine with starch paste and covered with a lining of laid paper. The original support lining of heavy scrim between the vellum support and the back of the headbands was retained in the structure.

The original headbands were missing from the volume, with only the vellum strips laced into the cover remaining. The degraded and weak strips were removed from the logbook and returned with all original material to the State Library of New South Wales to be retained as documentary evidence. A new vellum core was used to recreate the headbands on volume two with the same pattern and colours as selected for volume one.

The vellum lacings were threaded through the vellum cover slots. After fixing the cover by the side lacings and headband lacing, the pastedown was adhered to the inside cover with starch paste and left to dry for one week in a press.



Figure 4. Resewing volume two with Japanese gampi paper.

Conclusion

The conservation of the two *Bounty* logbooks not only uncovered materials and binding techniques of the 18th century, but revealed information about Bligh's travels in the Pacific region. The condition of the books showed examples of the voyage's tribulations, and the sewn and pasted text-block additions presented a curious historical reading into the volumes. However the additions also created a structural hindrance to the book's working dynamics. The conservation treatment was conducted with full regard to the book's strength and future handling and exhibition requirements, but with consideration for the historical evidence contained within the structure.

Acknowledgements

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Reference

Alexander, C. 2003. *The Bounty: The true story of the mutiny on the Bounty*.
London: Harper Perennial

Author biographies

Jodie Proud graduated with a Bachelor of Applied Science in Conservation of Cultural Materials from the University of Canberra in 2002. She completed her Bachelor of Visual Arts majoring in printmaking at the South Australian School of Art prior to her conservation studies. Jodie has been a paper conservator at Artlab Australia for the past three years, specializing in art on paper treatments.

Anthony Zammit is the senior rare books conservator at Artlab Australia. Anthony started his career as a bookbinder at the State Library of South Australia and was a founding conservator of the State Conservation Centre of South Australia (Artlab Australia) in 1986. Anthony has travelled extensively, acquiring skills and knowledge in bookbinding and conservation from Europe and the USA. Anthony was invited as a guest lecturer at the University of Malta in 2004 and looks forward to sharing his skills internationally in the near future.

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