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# Same Albums, Different Treatment Approaches: The Conservation of Two Photographic Albums from the First Modern Olympic Games in Athens, 1896

Adia Adamopoulou

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The conservation treatment of photographic albums dating to the nineteenth century has been examined in the past in various workshops, publications and conservation articles. The focus of this paper is two unique photographic albums with rare pictures from the first modern Olympic Games in Athens in 1896, compiled by the photographer Ioannis Lampakis. Lampakis is now recognized for his pioneering depiction of movement and action, despite the technical limitations of his era, and these two albums are acknowledged for their aesthetic and stylistic value. This paper provides a useful case study, which will discuss the rationale for two different treatment approaches to two almost identical photographic albums, made at the same time, in the same way, with the same pictures, kept in the same place, and experiencing a similar flood history. Prior to treatment, the following significant factors are considered: the value, rarity, quality and condition of the albums and prints, the owner's will, and the expected future use. Two different conservation strategies were devised for these albums, which ensured improved preservation and access for both.

## Introduction and Evaluation of the Albums

The professional photographer Ioannis Lampakis (1848–1916) was born in Athens and documented in his pictures significant events in Greece during the later nineteenth century (Xanthakis 2006). Among these works were memorable photos from the first modern Olympiad in 1896, which was a successful revival of the ancient Olympic Games. Lampakis' themes included the sports, the ceremonies and the side social events during the games. What differentiates him from his contemporaries is that his pictures are not posed but are taken while the athletes are in motion. His images were taken from the viewer's position in the stadium, establishing an unorthodox perspective, which typically comprised three aspects in his frames: 'athlete–sport–viewer' (Delatolas 2006). It is generally accepted that his work signals the birth of photo reportage in Greece (see Figure 1).

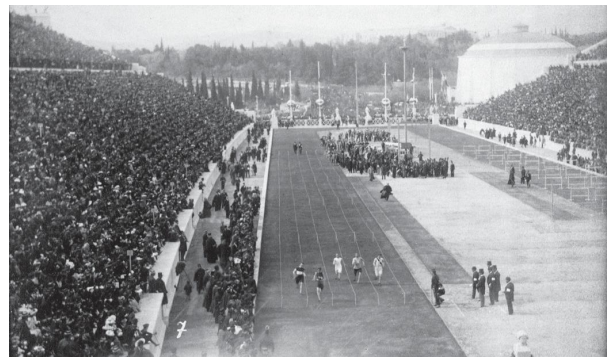


Fig. 1. The final of the 100 metres race, where the American athlete Tom Burke came first. © Lampakis Family Archive

In 2010, the photographer's grandson and solitary inheritor of the Lampakis family archives entrusted for conservation a green cloth-bound album with thirty-five pictures taken during the

Olympic Games of 1896. In 2011, the family entrusted a second album similar to the first but bound in a red cloth cover. It contained the same pictures, plus an additional photograph of the first marathon winner, Spyridon Louis. It was proposed to display a selection of the images in a photographic exhibition at the summer Olympic Games in 2012 in London. This paper intends to discuss the individual aspects of two entirely different conservation treatments undertaken on these two similar artifacts.

The albums contain images taken exclusively by Ioannis Lampakis on the occasion of the first International Olympic Games of the Modern Era. During his photographic career, Lampakis collaborated with his two brothers – Georgios, a distinguished archaeologist who was a dedicated photographer that documented Byzantine monuments throughout Greece, and Emmanouil, an accomplished painter – both of whom probably helped him with the production of the albums.<sup>1</sup> On the front page was placed an index with the prints' titles and informative details, indicating that individual photographs were available for sale at book and stationery stores in Athens. Inside the albums there was also kept a series of unbound, low-quality pages with extra copies of some photographs that probably remained unsold. Unfortunately, these Olympic images don't appear to have been a commercial success at the time, possibly due to their unconventional perspective. However, today they are highly regarded for their innovative depictions of athletes in motion.

### Description and Condition of the Albums

Prior to describing the albums, it must be mentioned that in 1984 they suffered water damage in a small flood. A plumbing problem in the storehouse where the photographic collection was held in boxes on the floor resulted in water to a depth of 10 cm. Mould growth was reduced by air drying the photographic material, and controlling the environment with the use of thymol crystals and ventilators.<sup>2</sup>

The Lampakis albums have the characteristics of a scrapbook, featuring acidic pages and extravagantly decorated covers (Horton 2000). They have case bindings whereby the covers were made separately and then bound to the textblock by adhesion of the endpapers, although the spine of the cover was not adhered to the textblock (Primanis 2000). The albums were covered with green and red book cloth respectively, and decorated with gold embossed designs and a piece of printed leather on the front cover. All covers are worn from frequent use and are bowed and warped due to absorption of water, possibly during the flood. A higher degree of water damage is evident on the red album whose book cloth is severely stained, mould affected, discolored and delaminated (see Figure 2).



Fig. 2. Exterior views of the albums before conservation treatment. © Adia Adamopoulou

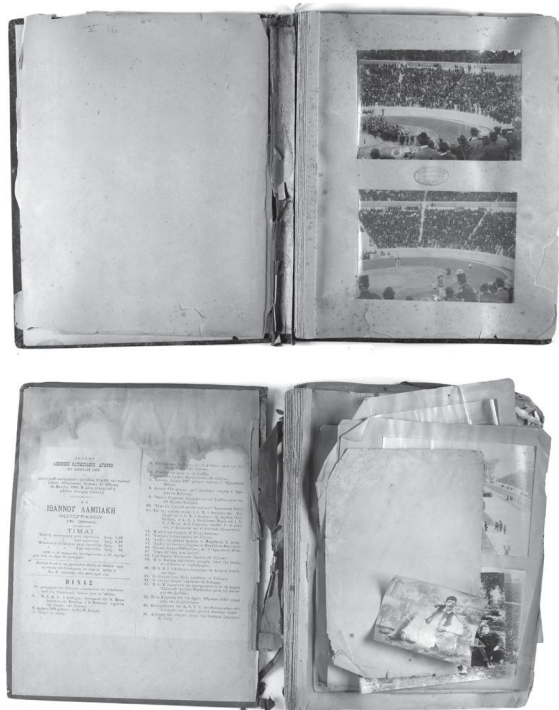


Fig. 3. Interior view of the green album (above) in comparison to the red album (below), where the unbound pages were kept. © Adia Adamopoulou

The spine of the cover has a relief paper lining that has detached from both albums; in the red album, it is almost destroyed. This failure is due to the poor quality of the materials used for the construction of the binding, such as the glue and the paper lining. Moisture has caused expansion and damage throughout the spine of the textblock.

The machine-made endpapers are discolored and adhered overall to the covers. The title page is glued onto the front pastedown.

Despite the impressive exterior of these commercial albums, the interiors were constructed of average quality materials, as was common (Lavedrine 2007). The pages of the albums were initially flexible and were utilized to form the stub structure. As the paper has aged, it has become brittle and weak, developing many tears. Typical cockling and undulation were present on each page, caused by the adhesive as it dried unrestrained under each photograph. There was foxing on many of the album pages, in some cases very severe (see Figure 3).

The structure of these albums consists of paper stubs created by folding the album pages at the gutter edge. Each of the stubs is interlocking, as shown in Figure 4. The purpose of each stub is to create an allowance within the book structure to accommodate the photographic images. In the centre of the spine, between the ninth and tenth pages, there is an auxiliary stub, which is folded three times. The structure of the red album was weak but intact, whereas the structure of the green album had been compromised and was broken into four sections.

The prints are mounted two to a page, only on the recto side; one single image is mounted on the verso. All are albumen prints in landscape format

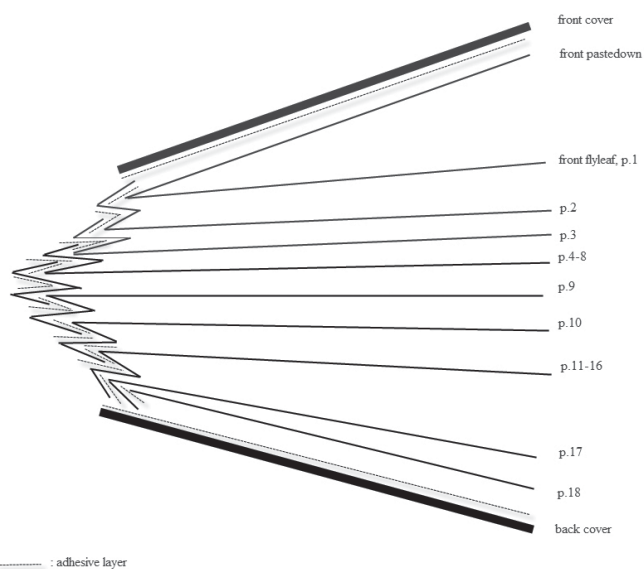


Fig. 4. The page construction and connection. © Adia Adamopoulou

(13 x 18 cm). The main degradation problem of the prints was fading and yellowing, accelerated by the high lignin content of the album pages and the acidic nature of the adhesive used for mounting. Undulation of the pages has trapped dust particles and increased oxidation of the external borders of the prints (Ploye 2001). Adhesive degradation has created tension across the surface of the prints and increased emulsion cracking, minor tears and delamination.

The extent of mould varies between the two albums, with the green album being the least affected. Examination under visible light indicated microorganisms to a limited extent on some photographs, and ultraviolet (UV) illumination clearly shows areas of bright blue-white fluorescence. A survey of images within the album shows minor damage in the form of image loss, planar distortion, mirroring and insect deposits. Photographs have been affected by foxing to a lesser extent than the album pages.

After surveying the contents of both albums, it was possible to compare the quality of each set of images. It was concluded that the overall contrast in the prints of the green album was superior, with almost 30% of images tinted pink with aniline dye. This was a common procedure in albumen printing, commercialized after 1863, and consisted of adding aniline or other organic dyes into the emulsion layer. The color pink was chosen to counterbalance the yellowing of these prints. However, aniline dye is lightfast, so the pink-tinted albumen prints tend to discolor and become buff toned with age (Cartier-Bresson 2008).

### **Treatment Considerations**

The impetus for conservation treatment of the albums was a display in London to coincide with the 2012 Summer Olympiad. The albums are unique tokens of Lampakis' work, who states in his index page: 'This is the only complete and probably successful collection of photographs from the International Games of 1896'. The owner had also asked to improve access to his collection.

In practice, it was not feasible to restore both albums to their original status. In order to make an accurate assessment of the full extent of the damage, to differentiate between the two albums and to consider treatment options, a damage scale comparison was prepared (Figure 5). It can be seen that the green album had covers in better condition but a detached textblock while the red album had badly worn covers with the textblock intact. The red album had sustained greater saturation in the flood as the pages were extremely cockled and would require intensive treatment to become functional again. Viewing of the images in both albums was impeded due to binding damage.

In many instances, the best conservation plan is to organize good storage conditions to minimize physical stress to the objects during handling, and to produce digital copies.

### **Rationale for Treatment of the Green Album**

The green album is frequently consulted and had already been duplicated for the 2004 Olympic Games in Athens, but the resolution was poor by today's standards.<sup>3</sup> Therefore, an important factor in the preservation of this album was the achievement of high-quality images, which would increase the versatility and access to reproductions while reducing the necessity to handle

the original material. With moderate use expected in the future, the conservation treatment was aimed at preventing further deterioration by reinforcing those areas of weakness within the binding structure. The flexing of the pages during turning caused tears, which needed to be strengthened and protected from further deterioration.

In examining the treatment options and after some unsuccessful trials to flatten in situ those album pages that were still intact, it was decided that the most satisfactory solution was to deconstruct the album's binding structure. Pages were detached from the binding, enabling each image to be scanned separately without any strain on the spine, and then strengthened before reassembly. This ensured a good-quality digital copy and eliminated any distortion caused by the album's restricted opening angle.

<b>Damage Type</b>	<b>Degree of Damage to the Green Album</b>	<b>Degree of Damage to the Red Album</b>
1. Cover mechanical stability	2	4
2. Cover chemical deterioration	4	<b>5</b>
3. Delaminating cover	4	<b>5</b>
4. Boards detached	3	4
5. Spine damage	4	<b>5</b>
6. Endpaper stability	1	1
7. Album page connection stability	3	1
8. Adhesive failure	2	2
9. Album page brittleness	4	4
10. Page creases	2	1
11. Page cockling	4	2
12. Losses of paper	3	3
13. Tears	3	4
14. Surface dirt	3	3
15. Foxing	3	3
16. Page discoloration	4	4
17. Microorganisms / mould growth	3	4
18. Insect deposits	2	1
19. Cracked emulsion on photographs	2	2
20. Mirroring	2	2
21. Fingerprints on photographs	1	1
22. Emulsion losses	2	3
23. Image discoloration	3	4
24. Image yellowing	3	3
25. Chemical residues	2	2

Fig. 5. Damage scale comparison between the two albums. © Adia Adamopoulou (1: no damage, 2: little damage, 3: fair damage, 4: very damaged, 5: severe damage)



### Rationale for Treatment of the Red Album

The rationale for treating the red album was influenced by a number of factors. The overall condition of this album was significantly degraded due to its extensive water damage (see Figure 6). Although the images in the red album do not display the same degree of contrast observed in those from the green album, it was considered necessary to salvage them from their detrimental environment within the album where the chemical state of the photographs was at risk. Since the binding structure for both albums was identical and a record of the overall layout would be retained by the green album, the priority was to prevent further damage to these images. To this end all thirty-six photographs were removed, cleaned and stored in an isolated environment.



Fig. 6. The damaged textblock of the red album.  
© Adia Adamopoulou

### Treatment of the Green Album

A number of tests were undertaken. A spot test on the stability of the stamp ink revealed that it was partially soluble in water but stable in ethanol. A phloroglucinol test of the album pages indicated high lignin content. Tests on the binding adhesive indicated it was protein based.<sup>4</sup> And as suspected, the pH of the pages in both albums before conservation treatment was acidic with a reading of pH 6. This reading meant there were implications in terms of managing exposure to light while on display and ensuring stable environmental conditions for future storage.

Conservation treatment of the green album began with dry cleaning of the album pages and the photographs. A Mars Plastic Staedtler eraser was used for the album pages and the inks were avoided on the front pastedown. A Pentel eraser pen (using ZER 2 refills) was used on the photographic prints, avoiding the cracked edges. Controlled suction from a mini vacuum cleaner was used to collect both eraser debris and mould spores. The fungi-affected areas appeared to have inactive mould but, as a precautionary measure, a denaturing solution of 70% ethyl alcohol was used on the affected areas (Florian 2002).

The approach adopted for disbinding the textblock was to mechanically remove the adhesive as attempts to swell the adhesive with humidity had resulted in preferential softening of the paper ahead of the adhesive. Once the stubs were cleaned of adhesive residue they were reinforced with Japanese tissue, Tengujo (weight 9 gsm), and a 1:1 mixture of corn-starch adhesive and methylcellulose.

The numerous tears were repaired with Japanese tissue, Tengujo (weight 9 gsm), and a 1:1 mixture of corn-starch paste and methylcellulose. All the losses were repaired with paper fill from an archival paper, Heritage Woodfree (weight 160 gsm). These paper fills were given a sizing layer of 8% Klucel-G and toned with gouache colors using an airbrush. Humidification was undertaken on both sides using Capillary Matting® and Gore-Tex® for ninety minutes, and

then flattening was undertaken in the press between wool felts and dry blotters, which were changed regularly until dry.



Fig. 7. The rebinding of the green album.  
© Adia Adamopoulou

Reassembly of the repaired pages replicated the original structure, using a combination of wheat-starch paste and methylcellulose in a ratio of 2:1. A Japanese tissue, Kozo (weight 17 gsm) was used to attach the textblock to the endleaves, and the body of the album to the flyleaves.

Rebinding of the album covers to the textblock was undertaken by Ms Frosso Ganniaris, a bookbinding specialist in Greece. The spine of the textblock was reinforced with mull, heavyweight paper and headbands, and then the spine was joined to the two covers. Losses along the edges of the covers were filled with a matching textile (see Figure 7).

During treatment it was possible to resolve the location of a loose second page of the index by examining the edge of the index page, which revealed that it matched the front endpaper. This page had been previously placed within the album alongside the last endpaper, and had been replicated in this location for the 2004 surrogate edition.

### Treatment of the Red Album

The photographs were dry cleaned using the same method as described for the green album. Considerable research was undertaken to determine an appropriate method to detach the photographs. The immersion option was excluded in order to avoid the formation of cracks in the emulsion layer (Messier 1991). Various humidifying materials were tested in order to find a controlled procedure, and humidification was achieved using a damp pack of Capillary Matting and Gore-Tex. The verso of each album page was isolated overall from the rest of the album with a sheet of polyester and on the recto the borders of the album page were isolated with strips of polyester sheet. Each page



Fig. 8. Delaminating the photograph of the marathon winner, Spyridon Louis, from the red album. © Adia Adamopoulou



was sandwiched between two sheets of Hollytex®, two sheets of Gore-Tex and two pieces of wetted Capillary Matting were placed over the photograph. A piece of glass was placed on top. The length of humidification varied from one and a half to three hours, dependent upon the individual photograph. The photographs were then delaminated from their support with a Teflon spatula (see Figure 8). The ease of removal was dependent upon the application of adhesive and how easily the album paper separated, but a thin layer of paper was left on the verso of each image. This remaining paper layer was removed using a methylcellulose poultice with a solution of 1:1 ethanol:distilled water. This resulted in minor cockling but after a gentle humidification using a Gore-Tex membrane the photograph was relaxed. Each photograph was dried in a press for a week, sandwiched between blotters and wool felts, with silicone paper on the emulsion side to preserve the glossy finish. Blotters were changed regularly.

The humidification of the album pages increased their flexibility marginally. Due to time constraints it was not possible to provide a lining of Japanese tissue for each of the photographs; instead they were placed in polyester sleeves with an interleaving photosafe paper.

### **Digital Scanning**

Images on the flattened pages were digitally scanned using a resolution of 300dpi and the digital images were enhanced by a chromolithographer, which, although using a restricted color palette, has the advantage of accurately calibrating colors for reproduction.<sup>5</sup> A new edition from the 2011 digitization project is expected shortly.

### **Recommended Conditions and Handling**

It is recommended that photographic albums be stored at 30–40% RH (+/-5%) and a maximum temperature of 18°C (+/-1°C) (Lavedrine 2000). Conditions above 70% RH pose the risk of biological contamination, and a dry atmosphere may lead to loss of flexibility and delamination between the paper support and the image layer. For display, to minimize photochemical degradation of albumen prints, daylight and fluorescent illumination should be avoided; the preferred illumination level is 50 lux and prints should be illuminated with tungsten lamps (Reilly, Severson and McCabe 1982).

The green album is stored horizontally to reduce any strain on the binding. Renaissance Tissue (45gsm) is placed between the pages to protect the photographs; the exterior cover is protected with a wrapping of soft Tyvek (39g/m<sup>2</sup>) and placed into an archival clam-shell box fabricated from photosafe materials. Both the archival wrapping and box serve to create a microenvironment, minimizing the effects of humidity, and excluding dust.

The detached photographs from the red album have been retained in A4 polyester pockets, which fit into a ring-binder box. This ensures the images are stable, protected and readily accessible for consultation.

To ensure the long-term preservation of the green album it is necessary to minimize handling. The viewing of the album will be specifically for research purposes. Handling should be careful and a book support has been constructed out of archival corrugated board to reduce the strain on the binding and limit the opening angle to 90 degrees (see Figure 9).



Fig. 9. The green album after conservation treatment onto the custom made book support.  
©Adia Adamopoulou

The red album will be retained for future study as an example of a commercial binding style.

### **Conclusions**

Reconciling both the physical nature and the long-term preservation of photographic albums is often difficult. Using technology offers a way to provide access and thereby reduce the demand on the fragile original material.

In this case study the conservation treatment of the green album has retained the integrity of the original format for display, while the digitization of each photograph has provided wider access. The conservation treatment of the photographs in the red album has prevented further deterioration of these individual images.

In the 1984 water incident, the immediate response of the archive-keeper saved the albums from complete damage, and the recovery by a conservator proved to be an effective method. Primarily dehumidification and good air circulation halted the mould growth, probably assisted by the antimicrobial properties of the thymol, although it is no longer recommended for use with photographic materials.<sup>6</sup>

The intention of this paper was to provide the rationale that guided the treatment approach to each album. This conservation project has enabled both an accurate digital record of a historically significant suite of photographs and preserved the original material for display and long-term storage.

### **Notes**

1. All three Lampakis brothers were distinguished personalities of nineteenth century Athenian society: Georgios, an archaeologist and also a dedicated photographer that documented Byzantine monuments throughout Greece, contributed greatly in the foundation of the Christian and Byzantine Museum of Athens and became its first director; Emmanouil, an accomplished painter who studied at the Munich Academy of Fine Art, and finally Ioannis, the photographer, who collaborated with famous Greek photographic firms of the time and in his late years became a priest.

2. Mould can grow within 48 hours in 60% relative humidity and 21°C and can cause permanent staining on photographs; therefore, it is crucial to dry out the material immediately. Air movement prevents the retention of high moisture content, which favors mould growth (Olcott Price 1994).

Consultation with the paper conservator who dealt with the flood damaged material in 1984 advised that the photographic material was found lying on the floor in boxes, partially submerged in the water and emitting a strong odor. Action was taken a few hours after the incident with water being pumped out the same day. Ventilation was used and thymol crystals were used the following day as was common practice at this time.

3. In the following resource access is offered to the digital surrogate:

<http://www.aol.org.gr/sylloges/fotografiko-arxeio/olympiakoi-agwnes/leukwma-olympiakwn-agwnwn.pdf>

4. Two tests were conducted. Firstly the Iodine Potassium Iodide test showed no color formation, so starch was excluded. Secondly, the Biuret Test resulted positive for protein. (Mayer 1990 pp. 26, 31)

5. A chromolithographer uses the CMYK (cyan, magenta, yellow, black) color palette and possesses fewer hues than a photographer who works with RGB (red, green, blue) colors.

6. Thymol doesn't meet the criteria of effectiveness and residual protection of photographs; it may also leave undesirable effects on the artifacts. The Centre de Reserche sur la Conservation des Collections (CRCC) in France proposes the use of oxyfume 2002 (10% ethylene oxide, 27% chlorodifluoromethane - HCFC-22, 63% chlorotetrafluoroethane- HCFC-124). Ethylene oxide is safe for photographic material, but it must be used by specialized personnel in an appropriate facility. (Lavedrine 2007, Olcott Price 1994)

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