1991

Conservation survey of the Benaki museum photographic archive in Athens, Greece

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CONSERVATION SURVEY
OF THE BENAKI MUSEUM PHOTOGRAPHIC
ARCHIVE IN ATHENS, GREECE
by
Vasiliki Hontos

THESIS REPORT

Submitted in partial fulfillment of degree requirements for the

M F A IMAGING ARTS - PHOTOGRAPHY
Rochester Institute of Technology
School of Photographic Arts and Sciences
Rochester, New York

September 1991

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ACKNOWLEDGMENTS

I would like to thank my thesis board, Grant Romer, James Rielly and Michael Hager, for all of their help and sound advice. I consider myself very fortunate to have had the guidance of these individuals since I began my work in the field of photographic preservation.

With respect to my thesis project, Mr. Romer, my advisor, provided inspiration, motivation and support. He also consistently kept me pointed in the right direction.

Mr. Rielly is both a gifted scientist and a gifted teacher. I have learned much from him, primarily because of his unique ability to present complex, scientific information in a manner that is very clear and oftentimes entertaining.

Mr. Hager has exhibited great patience in teaching me the finer points of photographic copying and duplication. He has also been very generous with his time in assisting me as I made final corrections and refinements to my project.

I am also very grateful to Mrs. Fani Konstantinou, curator of the Benaki Museum Photographic Archive. Without her consent, this project would not have been possible.
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PREFACE

My first memories about photography concern some rather puzzling thoughts. As a little child, I was fascinated with the photographs, the likenesses of people and the surrounding world in general. It was a big mystery how from the camera’s click we were finally getting a photograph. A child’s imagination can run wild; in my case, a photograph was a work of magic. I had really seen the photographer as a magician, a person with unusual, super-natural abilities that not everybody could have. This seemed more possible with the studio or the itinerary photographer who was hiding underneath the big black cloth to “execute his magic work”.

The time came when I became a “magician” myself. Out of great curiosity about the many aspects of photography I got involved in it from the first minute I found myself in an art school. I solved the mysteries that occupied my childhood about the subject without however having any of the special fascination about them lost. Before even realizing it, I made photography my main occupation. As a natural consequence at some point, I developed an interest in the history of photography and subsequently in looking at old photographs, if possible, at the ones coming from the very early days of the medium’s history. At first it was just the fascination and enjoyment of looking at the work of the first “magicians” and then came the many other aspects surrounding the photographs of the nineteenth century.

There came the day I learned that some characteristics I
liked about those photographs, like their sometimes faded, brownish color or whatever made them look old, 'antique', didn't mean anything else but one or another form of deterioration. With time, I was becoming more aware of the vulnerability of the photograph as a material object. I also became more interested in the field of photographic conservation, still liking the old photographs, but not with an ignorant approach.

At that time, being a graduate student at Rochester Institute of Technology (RIT), I had the great opportunity to take courses directly related to this field. Those were "Conservation Procedures" and "Preservation Issues in Exhibition Procedures" both taught by Mr Grant Romer, Director of the Photographic Conservation Department at the International Museum of Photography/George Eastman House (IMP/GEH). Another course was "Preservation Issues with Fine Art and Historical Photographs" taught by Mr. James Rielly, Director of the Image Permanence Institute (IPI), Rochester, NY. These courses were very informative and made me even more aware of the many aspects of this recently emerging field of photographic conservation.

When the time came to move towards pursuing a thesis project, in order to complete all the requirements for the Master of Fine Arts, I realized that it would be beneficial to undertake a thesis project in which I could apply the knowledge and training acquired in the courses mentioned above. This could broaden my experience and understanding of the field, making me even more competent in it.
BEGINNING OF THE PROJECT

In order to come closer in defining the nature of the thesis project which would be the most interesting and challenging to me, I had meetings with Mr. Grant Romer and Mr. James Reilly, people that I knew could help and advise me the best on this matter. These meetings took place in the Spring of 1990 and during one of the discussions I had with Mr Romer, he suggested that in my case, coming originally from Greece, a quite beneficial thesis project could be a conservation survey for a Greek photographic collection. This was a great suggestion and it perhaps spelled out something about which my mind was unconsciously wondering.

No such survey has yet been created in Greece and most likely no attention or any care has been given to photographic collections. Here was a great opportunity for me to create a conservation plan and resource which was going to aid in the preservation of the photographic heritage of Greece. This may seem to be quite an ambitious attempt, but I was going to be very happy even if I could just introduce the idea and cause some awareness about the preservation for valuable photographic materials. These, of course, are not the famous Greek antiquities, but they certainly concern an important part of the more recent Greek history, culture and artistic creation that also needs and is worth preserving.

The first step in pursuing this project was to make a trip to Greece, in order to see as many photographic collections as possible in public or private institutions there. Of
course, it was important to make contact with people responsible for the collections.

Suspecting the difficulties that could occur in such an attempt, I had to prepare the most favorable situation possible. After Mr. Romer’s advice, I sent letters to individuals that it seemed useful to meet. Two of those I contacted were curators of photographic collections in Athens: Mrs. Maria Nesi at the National Gallery and Mrs. Fani Konstantinou at the Benaki Museum. Another person contacted was Mr. Craig Mausy, a photographer at the American School of Classical Studies in Athens, whom Mr. Romer happened to know.

In preparation for this trip, I also researched the photographic collection at the IMP/GEH. I was looking for photographs of Greece taken by Greek or non-Greek photographers at any time. Of course, the museum’s holdings don’t fall short at all in this kind of material, and I did find such photographs belonging mainly to the nineteenth century.

While this research was going on at the Print Collection Department, I was doing another search at the Museum’s library looking for books or any publication pertinent to photographic practice in Greece, from its earliest time to the present. During that search, I found a book with the title History of Greek Photography 1839 – 1960 by Alkis Xanthakis. It was published in the 1980’s by the Hellenic Literary and Historical Archives Society, and to my surprise, this copy was in Greek; soon a copy in English was found by one of the librarians. In addition to reading the book, I
also sent a letter to its author, Mr. Xanthakis. I informed him about my visit to Greece and its purpose and that I wanted to contact him while I was there.

To make my trip preparation even more complete and efficient for its purpose, I started putting together a kit of basic photographic housing materials, sample enclosures and archival supply catalogs. I felt these items could be useful to caretakers of photographic collections in Greece.
THE TRIP TO GREECE

In the summer of 1990, I visited Athens, Greece for a month (middle of June to middle of July). My main purpose was to contact people who take care of photographic collections in public or private institutions i.e., museums, galleries, and, of course, seeing as many as possible of those collections.

From the first week's trials in my attempts to establish contact with those people, I sensed that I had to cut short my highly inspired plans. Even though I had sent them letters, about my visit and its purpose, well in advance, I had difficulties. In one case the letter had not been received and in another even the letter had been received, it was not really time for an appointment.

Fortunately, my experience from this trip had its good side too. The curator of a photographic archive at a private museum, happened to be away during my first week in Athens. I contacted her very early the second week to find out that she was more than willing to meet me, and she actually was looking forward to it since she had received my letter. This started lighting-up my situation, and there I was on Tuesday June 26, at 10:30 in the morning having my first meeting with Mrs. Fani Konstantinou, Curator of the Photographic Archive at the Benaki Museum.

From the first minute, I felt very welcome and in a quite friendly environment. Right away, a great interest was expressed in what my visit was about, which I had already
explained in my letter. After I introduced myself in person, I explained in more details where I was coming from, what I was doing, and what my studies and interests were. The questions about their collection’s problems started coming one after the other, and I was even more overwhelmed with questions when other museum staff with related interests were invited to the meeting. These people included paper conservators, the previous curator of the Photographic Archive, the curator of the Historical Archive, where there are also photographs included.

That first day was very tiresome, at some times many questions were coming all together and it was expected that they all be answered. It was also very rewarding I got that pleasant feeling of offering them something useful. I was in the middle, showing “the goods of my trade to the interested crowd”, eyes and ears wide open, and notebooks filled with useful information.

Since our mutual interest became obvious, I did not feel hesitant at all, at the end of this meeting, to ask Mrs Konstantinou, to let me do something more for their Photographic Archive. I explained I would like to do a conservation survey which could benefit the Photographic Archive and me as I could make this experience a thesis project and therefore complete my MFA degree requirements. Her consent was immediate and the only thing remained was for her to ask for official permission from the director of the museum. After this was successfully done I started visiting the museum daily from June 29 to July 12.
This may seem like a lot of time to go through an average size photographic collection, within the scope of a survey, but in my case, I was limited to only three to a maximum of four hours daily at the museum because, those were the hours that it was open and when basically people were working there. Besides the time problem, it happened to be summer which means it was very hot, about 35-40 C (95-104 F). Fortunately, it was dry but the highly polluted atmosphere of Athens created a condition which could affect humans in a very negative way. An air-conditioning system is a scarce thing, especially in old buildings like this museum. Therefore, an overpowering fatigue was always there ready to attack. I had to fight it and take into my fight the museum staff or volunteers who were working with me. I am glad that I do not have any complaint because, under this condition, they did their best in helping me in any way and answering my questions and I kept answering theirs.
AFTER THE TRIP

After coming back to the United States and considering the task at hand, I realized that I had to become informed in more detail about different areas of photographic conservation. Since the majority of the Photographic Archive's holdings consists of various types of negatives (glass plates, nitrate, acetate, polyester) it was logical to train myself on how to treat problems relating to them and, above all, learn duplication and copying procedures. In the fall of 1990, I did take a course on the subject, taught by Mr. Michael Hager, an archivist and museum photographer.

At the same time, and more intensely afterwards, I did a research about not only negatives, but also the other types of photographic materials that I had to deal with like albumen, collodion, silver gelatin and bromoil prints, lantern slides and albums. I also needed to search for information about cataloging and other organization and management of photographic archives procedures. Since photographic conservation is a relatively new field, it's quite difficult to find an extensive bibliography. Most of the existing literature is more likely to be found not so much in book form, but in individual articles published in various journals not always directly related to photographic conservation. Additionally, you can't expect to walk into a library and find this material there. I was very lucky to be in Rochester, NY where two of the very few places carrying pertinent literature, are located, the Image Permanence
Institute and the International Museum of Photography/George Eastman House.

All information obtained had to be sorted out because some were not quite reliable or more likely were out-dated despite the newness of the field or perhaps this is part of it. This also indicates the need for keeping informed about new findings and recommendations. It is, however, extremely helpful and hence highly recommended to 'dig' into nineteenth and early twentieth century literature on photographic processes. There, you are not only getting acquainted, at first hand, with the 'early masters' and the details of their photographic practice, but also their concerns about preservation problems.
HOLDINGS OF THE BENAKI MUSEUM PHOTOGRAPHIC ARCHIVE

1. One to two thousand original photographs belonging to nineteenth and twentieth century. These include various types of prints with a substantial number of:

A. albumen
B. collodion
C. silver gelatin
and also a few bromoils

These are mounted or unmounted prints of different sizes including card de visite and cabinet style and also stereographs
D. modern prints made from original negatives are approximately thirty thousand.

2. About fifteen albums of various sizes.

3. Negatives:

A. twenty one thousand of mixed gelatin dry glass plate and cellulose nitrate mostly 5 X 7 inches
B. about fifteen thousand cellulose acetate of various sizes including 4 X 5, 2 1/4 X 2 1/4 inches and 35mm

4. A few hundred lantern slides (diapositives).
The Benaki Museum was founded in 1930 by Anthony Benaki, and it is "the museum of modern Greek life" as its present director, Mr. Angelos Delivorrias, states in the Guide to Benaki Museum. Its holdings date from antiquity to mid-twentieth century with the aim "to produce grounds for comparison between the works of our own age and those of antiquity, Byzantium and also cultures that flourished within the same geographical area."¹ Those artifacts include 3-dimensional objects: ceramics, metalworks, woodworks, textiles, a large collection of costumes and jewelry from different areas of Greece and also 2-dimensional works: paintings, Byzantine icons, engravings and drawings.

"The Photographic Archive was founded in 1973, with a view to collecting and classifying photographs of monuments and objects of early Christian, Byzantine and post-Byzantine art from Greece and other countries. Another of its tasks is to collect photographs documenting certain aspects of modern Greek life up to, roughly, the time of World War II: occupations and professions, cities and villages, architecture and art, customs and mores, insofar as they have survived in their traditional form, prior to the financial and social changes of recent years. ........a detailed filing system, with topographical and bibliographical data, facilitates scholars in their research"²

This description of the Photographic Archive’s original purpose makes rather clear its supplementary role to the rest of the museum's collections and also its importance because of its documentary character concerning culture and history of modern Greece.

² Ibid. pp 195-196.
During my visit to the museum in the summer of 1990, it was with pleasure to find out that new acquisitions to the Photographic Archive have extended its importance. The new additions include original nineteenth and twentieth century photographic material of great artistic value. Concurrently, researchers at the Archive have started coming from different areas of interest and perspective other than the cultural, historical or topographical. They are not anymore only historians, architects or filmmakers, but also art historians, photo-historians and artists of any sort including, of course, photographers.

THE COLLECTION’S IMPORTANCE AND THE NEED FOR ITS PRESERVATION

Even if there is some awareness about the Photographic Archive’s importance, this has still to be fully realized and understood to the extent that the Archive is not seen as serving only a mere complementary role to the rest of the museum’s collections. The photographic collection must be seen as being an important one in its own right. A large number of its photographic materials are unique items of great interest and value. Besides this, the collection can serve as a great visual source of information for history and art in general and more specifically the history of Greek photography, as well as other interests.

There is no question that the photographic collection deserves careful preservation. If this is well done, then present and future generations can be served and benefit from
such a source. This can comply very well with the Museum’s mission, following its founder’s wish to serve the public at all times, present and future.

THE NEED FOR A COLLECTION POLICY

The existence of the statement by the museum’s director in the Guide to the Benaki Museum concerning the scope and function of the Photographic Archive is a quite positive sign. However, this rather loosely constructed statement can only indicate the original views about the collection. Meanwhile, it seems that it has not been followed closely and some changes have been taking place with new acquisitions, leading to new possible directions. Therefore, the need arises for re-evaluating and redefining the collection’s purpose and significance. This has to be done in an official manner, resulting in a clear, well constructed, written ‘collection policy’. Such a document, describing the role of the collection within the museum, should also include ‘acquisition policies’. This means that it should be clear what the museum wishes to collect for its Photographic Archive. Of equal importance, is the inclusion of a ‘user’s policy’: who may use the collection and how.

It must be realized that a collection policy is the first step towards preservation. Because of the collection’s importance the way that it’s going to be used dictates the preservation actions to be taken. It is desirable that such actions will be proven efficient and not wasteful.
Any changes, or rather additions that may happen concerning the various functions of the photographic collection are not going to eliminate, to the contrary possibly reinforce, its very basic function which is to serve researchers. Hence, there should be a clear understanding that if this is expected to take place for much longer, an immediate and special care for the collection’s well being must be taken.
HOW TO SAFE-KEEP THE PHOTOGRAPHIC ARCHIVE

The two most important factors contributing to the destruction of photographic materials are:

1. Handling
2. Environment

HANDLING

It is a fact that photographs have not been attributed a great value and importance compared to other artifacts held in museums or any other institutions of the sort. Therefore, photographs have received the least attention, and they have usually been placed in the lowest levels of preservation priorities. This and the general ignorance (outside the photographic preservation circles) about the physical properties of photographs, have led to a high degree of their mishandling which is one of the main reasons contributing to their damage.

Another very common reason for the continuous mishandling of photographs, is that the physical damage which they are subjected to is not always apparent on a day to day basis. You can’t see this kind of damage with a casual look and within short periods of time, but it can be detected in the long run when most of the times it’s too late to reverse it.

In order to eliminate the damage caused to the Photographic Archive by mishandling, a thorough training of the staff or any person who handles collection material should happen very soon. An attitude of care and respect
towards every single item must be cultivated. It has to be clearly realized and understood just how fragile photographs are. The slow and careful handling of them should become a common practice. The use of cotton gloves is required at all times because a great deal of damage to the photographs is done by the dirt and oils of the fingers.

The same attitude of care and respect should be subsequently passed on to the researchers. The photographic material should be available to them only if they really have a valid reason to look at it. Their purpose of doing so should be clear and specific. Any casual browsing through photographs must be discouraged. Before using the photographs, they should always be provided with cotton gloves and a written set of rules on how to proceed in handling them (see sample used at IMP/GEH). A staff member should always supervise those viewing the photographs. This simple measure alone can create an awareness about the importance and value of the Photographic Archive.

THE USE OF ORIGINAL PHOTOGRAPHS

The fact that a big part of the Photographic Archive consists of modern prints made from the original negatives is a positive sign. This is certainly a very good practice to follow because it can minimize the use of original material by the researchers. However, my understanding of the present situation is that vintage originals are still being used, and it seems that this cannot be absolutely eliminated. In this
case, therefore, it is advisable to limit collection access and to allow it only for justifiable reasons. But in the case of a photograph that has come to the stage of being very fragile and sensitive to being handled, there is not any excuse that allow its use by any researcher.

The decision for certain photographs not to be shown under any circumstances has to be made in advance. This means that a constant monitoring of the condition of important, single items in the Photographic Archive is necessary.

SPACE

The lack of adequate space is one of the most immense overall problems that the Benaki Museum Photographic Archive faces. One single room is expected to serve many functions of a very different nature. This one room is the storage area for the quite diverse photographic collection and any other pertinent material. It also serves as the curator's office since her desk is in there, and, if not the worst of all, the area where researchers can look at photographs. This condition does not allow any of these functions to happen in a proper manner; not to mention that it can only lead to further damage of the collection.

Besides other space related problems to be discussed later, the one of concern here is that the lack of space causes mishandling of the photographs. They are carried under improper conditions since the use of carts suitable for transporting them is impossible. This way they can be very
easily mishandled, knocked around or misplaced. Unquestionably, the situation requires extra attention from the staff to ensure responsible and careful handling. It is also evident that only a few people should work in the given space at the same time. By just having people who handle them 'bumping at each other' can jeopardize the safety of the photographs.

The fact that researchers have to also be served within this obviously limited space, makes the condition even more complicated. An effort has to be made by the person arranging the appointments, in this case the curator, so that only one visitor at a time can use the collection. Because of the short museum hours, it seems that only one researcher per day would be best.

The big table in use to display photographs for viewing is a good solution for now with the precondition that it’s kept clean and clear of any other material not pertinent to the researcher’s interest. This way the photographs are not overcrowded and intermingled with any other items and, therefore, be in danger of physical abuse. Neatness also gives to the user a sense of care and respect for the collection.

Needless to say that not any other function should be scheduled to take place within the same space at the time of the user’s visit. This means that a well organized schedule should be made for the different kinds of functions to happen within the given space so that things can be worked out as smoothly as possible. This leads to less aggravation and, of
course, more efficient care for the collection.

ENVIRONMENT

The first step towards preservation of the Photographic Archive is the control of environmental conditions at the area where it is being stored. Any treatments or actions taken for the preservation of the photographs are going to be proved worthless in the long run, if these are to be returned to the same environment that caused their deterioration in the first place.\(^3\)

In this matter the Benaki Museum faces the same problem that numerous museums confront all over the world: to create a safe environment for its artifacts in a building that was not originally built to function as a museum. Because of this, it does not have an environment control system as part of its original structure. This only complicates the matter, but it does not at all eliminate the responsibility of trying to obtain the best possible environment within the given situation in order for the museum to preserve the cultural heritage that has been entrusted with.

Photographic materials require to be stored in an environment with controlled:

A) Relative Humidity
B) Temperature
C) Air Purity

A) Ideal recommended RH is 30-40% and never exceeding 60%. Humidity is the very first factor responsible for the many forms of deterioration to photographs. The effects can be of different nature such as chemical, biological or physical. High RH can put on set chemical reactions that cause fading, staining or discoloration of photographs. The presence of RH 65% and above leads to the growth of fungus and mold which are disastrous for photographic materials. The fluctuation of high and low RH causes physical damage to photographs like the following: cracks, tears delamination and warping, because the materials that these consist of i.e. paper, albumen, gelatin expand and contract at a different rate and manner.

B) The second important environmental factor to be controlled is temperature. It should be maintained at 18°C or below. Basically, high temperature becomes a very good aid to the destructive actions of humidity. It accelerates the chemical reactions and the mold or fungus growth set on at the presence of high RH. Special attention has to be paid here so that somebody does not come to the conclusion that if high RH cannot be controlled, they should at least try to keep temperature low. This seemingly compromising solution not only does not halfway solve the problem, but on the contrary reinforces it; in an humidity uncontrolled environment, the lowering of the temperature is going to cause the rising of the RH. These examples only show how bound together RH and

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temperature are, and that the simultaneous control of both is required.

C) The third equally significant factor to be controlled is the air purity. The air where photographic materials are housed should be cleared of any sooty particulates and oxidant gases. Both are produced by the burning of fuels in factories, power stations, domestic buildings and automobiles.⁶ Therefore, it’s obvious that they mainly exist in the big cities and towns.

Athens has gradually grown the last twenty to thirty years into an overpopulated city due to the huge number of people who moved there from the countryside of Greece, aiming in higher standards of living. Cars, buses and any kind of automobile fill its streets all day long and sometimes the traffic becomes extremely heavy. This results in an atmosphere filled with smoky particulates and quite harmful acidic fumes. If this was not enough the air pollution problem is enlarged by the existence of light or mostly heavy industry in some areas at the outskirts of Athens.

The fact that the Benaki Museum is located in the center of Athens, where air pollution has been found to be of the highest levels, makes it an unfortunate incident not only for the Photographic Archive but any artifact housed there. Before any real solution to the problem takes place at least some very basic measures can be put into effect immediately. For example, the elimination of the casual opening of the front door and the windows during the summer months or any

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other time would be helpful. Keeping them open perhaps creates a friendly and welcoming environment for the visitors and also a pleasant one for the people working at the museum, but at the same time creates a hostile environment for the artifacts. We should be prepared to face many contradictions of the sort while dealing with the preservation of various works of art. What is a suitable environment for humans it's not always the right one for the well being of artifacts. This contradictory reality should not again become an excuse for overlooking the responsibility to search for the best possible solution.

All forms of deterioration caused by the different environmental factors -RH, temperature, air pollution- are evident within the Photographic Archive: by faded and discolored photographs, growth of fungus and mold, foxing of prints and their secondary support, and the decomposition of negatives. What all these demonstrate is the very basic need for environmental control within the Museum if the longevity of these artifacts is desirable.

LIGHT

The basic problem concerning the lighting situation in the room where the Photographic Archive is housed, is the existence of big side windows which allow daylight or even direct sunlight to come in. This creates a rather pleasant atmosphere for the people in the room, but unfortunately the same cannot be said for the photographic materials in there.
Daylight, and specially direct sunlight, are rich in ultraviolet (UV) radiation which has been found to be very harmful to photographs as well as to various other artifacts. In order to eliminate this damaging factor, an immediate action to be taken is to keep the curtains well drawn at all times so that all daylight or direct sunlight is blocked. It is good that the artificial light used in the room is tungsten which is the best recommended for areas where photographs are housed or in any way displayed.
PRESERVATION PRIORITIES FOR THE DIFFERENT TYPES OF PHOTOGRAPHIC MATERIALS:

NEGATIVES

Cellulose Nitrate

The most prominent problem within the Photographic Archive are the deteriorating negatives, and particularly the decomposing cellulose nitrate ones. These negatives are inherently self-destructive because of the unstable chemical properties of their cellulose nitrate base. They go through different stages of deterioration until they finally, physically fall apart.

During their decomposition process, harmful gases are released which contribute to their further destruction, and also cause the deterioration of any other photographic artifact that happens to be in close proximity. This unpleasant situation is clearly evident in the Photographic Archive since glass plate negatives, which are stored together with the nitrate ones in metal drawers, show signs of deterioration such as fading and staining.

Obviously, an internal, harmful environmental factor is witnessed which needs to be eliminated as soon as possible. Interestingly, this is not independent from the other atmospheric factors, mainly RH and temperature, which can start or certainly accelerate the destructive chemical reactions taking place during the decomposition process of nitrate negatives.
Of course, the mistake should not be made to assume that the problem exists only within the specific drawers containing the nitrate negatives. The harmful gases mentioned most certainly escape to the rest of the room where other photographic materials are also stored, and they can very easily be in danger of falling victim to the 'destructive cycle'.

The first step towards solving the problem is to separate the nitrate negatives from the rest of the collection. This means not only to take them out of the drawers where they are stored with other kind of negatives but completely remove them from the room. The lack of space mentioned earlier, here again becomes quite a problem, but unfortunately, dealing with nitrate negatives does not allow for any compromises. Nitrate negatives are definitely a source of destruction which cannot be overlooked.

To save the image of these negatives, they should be duplicated before they reach the advanced stages of decomposition, when it is physically impossible to handle them. Direct duplicating film, one-step process, can be used, but this film has some limitations as to producing a 'true duplicate' with the exact density range of the original. This results from the fact that nineteenth and early twentieth century original negatives often have a greater density range than the direct duplicating film is able to render.

This film is also a bad choice for duplicating deteriorated negatives with stained or discolored areas because it is unable to render those areas due to its
spectral sensitivity. Direct duplicating film is blue sensitive; the color which is unable to reach the film during the duplication process because it is absorbed by the yellow-orange-brown stained areas of a deteriorated negative.

The most suitable method is the two-step process (interpositive-duplicate) because, if properly done, a 'true duplicate' negative is obtained. Also with some manipulation, even stained negatives can be successfully duplicated. In the two step process almost any panchromatic film can be used. This kind of film is sensitive to red, blue and green colors while orthochromatic film is sensitive to blue and green. Blue sensitive film is only sensitive to blue light. The panchromatic film's spectral sensitivity makes it able to render the visual information contained even on stained areas of a deteriorated negative. With the use of proper filtration the actual stain can be subdued if not completely eliminated.

The two-step method has another very important advantage since the obtained interpositives can serve as an archival record. The interpositives should be only used if another duplicate negative is needed. Of course, any number of prints can be made from these duplicates. As for the originals, they do not need to be handled again. Therefore, they can be put into permanent storage under, of course, the recommended specifications.

After duplication, the undeteriorated nitrate negatives should be put into buffered paper enclosures. Since the PH of these enclosures is alkaline rather than acidic, they cannot harm the negatives while at the time they can better resist
the acidity of the nitrate negatives if it is already present. Nitrate negatives should be stored in an environment of 30% RH and 50°F (10°C) or under even drier and colder conditions if possible. A ventilation system is also required so that any harmful fumes released can be removed from the area. The nitrate negatives which have reached the last stages of decomposition should be duplicated, if this is still feasible, and then disposed of properly.

Cellulose Acetate

Cellulose acetate negatives, an early kind of the so-called 'safety films', demonstrate somewhat similar problems as the nitrate ones. This in respect to the fact that cellulose acetate negatives also have an inherently unstable base, support, and during their decomposition, release harmful acidic fumes as well. The same environmental factors of high RH and temperature can initiate their self-destructive process.

What appears different is how their deterioration is physically manifested. Their deteriorating base shrinks, and the negatives at the first stages of deterioration warp unevenly. Later, as the shrinkage continues the emulsion eventually separates from the base, is forced to wrinkle, and also becomes quite brittle. The same partial separation from the base follows the anti-curl layer (back side of film).
For quite obvious reasons, the same preservation procedures should be applied to the acetate negatives as to the nitrate ones. As soon as possible, they should be removed away from the rest of the photographic collection. After duplication, they should be stored under the same environmental conditions recommended for the nitrate negatives without, however, meaning these two different kind of negatives can be stored together in the same area. They could only endanger the well being of each other, with the nitrate negatives more likely affecting the acetate ones.

It should be mentioned here that besides the present adverse atmospheric conditions within the Photographic Archive, the other very suspect factor for the deteriorating acetate negatives is the nitrate ones. They may be stored in separate drawers but still in the same room. Unfortunately, this ill-effect between the two cannot be eliminated if they are stored together in the same room even under the proper environmental conditions.

Glass Plate

The glass negatives in the Photographic Archive are basically gelatin dry plates and their most obvious deterioration, staining and discoloring, is mainly due to the fact that they are stored together with the nitrate ones. The need for isolating the nitrate negatives has already been mentioned and explained. This is the first step towards retarding the further damage of the glass plate negatives. These negatives are hard to handle because of their heavy and
fragile nature, therefore, they should also be duplicated and put into proper permanent storage [35-40% RH and 65F(18C)]
. Whenever there is a need for prints to be made, the duplicate negatives can be used for this purpose and never the quite sensitive and valuable originals.

LANTERN SLIDES (DIAPPOSITIVES)

Lantern slides carry a positive image on a glass support which has been sandwiched to another piece of thin glass. The main problem with them is the fact that they are heavy and fragile, requiring very careful handling and storage conditions similar to glass plate negatives. They should be stored vertically and never flat on stacks, because breakage is an obvious threat.

PHOTOGRAPHIC PRINTS

All the original prints and especially the ones from the nineteenth century which are mainly albumen, have prominent signs of deterioration such as fading, discoloring and foxing. This unpleasant loss of image quality unfortunately cannot be reversed. The best thing to be done is to retard any further damage, and this can only happen if they are stored under controlled environmental conditions. The other step to be taken is to protect them with an intimate housing which not only prohibits the intrusion of any detrimental

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environmental factor, but also any physical damage caused mainly by handling. (Details concerning handling and the use of original prints has been already mentioned in the specific section.)

Any intimate packaging must be well thought out and constructed to meet the particular need for use without endangering the integrity of the artifact. After this first level of protection, the prints should be offered a second one by being put in boxes according to size and kind. Special care should be taken not to overstack them. Depending on size and weight, no more than 12-15 prints should be put in a box. These boxes should then be placed on metal shelves preferably in closed cabinets. This layering of protection is a necessary measure for ensuring the long term stability of these valuable photographic materials.

Albumen prints are, of course, the most susceptible to deterioration, but the other kind of prints such as collodion, gelatin and bromoil are also vulnerable and require similar treatment regarding storage conditions and intimate housing. As for the large number of copy prints stored vertically in metal filing drawers, it is quite acceptable for them to stay this way now since they are actually adhered to a piece of board which offers them a good solid support. The only problem here is that among these numerous copy prints, original nineteenth and early twentieth century photographs were mixed. Fortunately, the curator of the Photographic Archive is well aware of the fact and has made it a constant practice to remove these vintage prints.
and give them more appropriate care.

ALBUMS

The condition of the albums ranges from good to excellent. Some of them show a degree of wear and tear of the cover and spine, while others are amazingly untouched by even this very common physical damage. As it could be expected, those with some exterior damage are also the ones in which to encounter some interior signs of destruction like foxing in the inside of the cover; foxing and cockling of the original interleaving sheets; more or less serious warping of the actual pages; and of course, some fading and discoloring of the photographs, especially around their outer edges. Overall, however, all of the albums are holding together well. They are in a rather good, intact condition and if they are taken good care of they will become some invaluable treasures of the near and hopefully distant future.

It is apparent that any damage they have suffered until now is due to rough and careless handling as well as storage under improper conditions, especially high humidity. These albums are unique objects, and they should be confronted and kept as such. They should be placed in approved, good quality "phase" boxes and then stored in closed metal cabinets. Again, the need for layering of protective 'armor' against any harmful 'intruder' should be realized.
QUALITY OF HOUSING MATERIALS

The housing materials are a very important matter which needs close attention. If they are not of good quality, they are most likely to be detrimental to photographs, causing them fading and staining. This is apparent in the Photographic Archive where photographs have suffered from the board on which they were mounted or from the envelope in which they were stored. This could be the case with the nitrate negatives which are stored in glassine and yellow envelopes of very suspect quality. Of course, these envelopes are not solely responsible for the deterioration of these negatives, but very possibly play a part in the 'destructive cycle'.

All commercial paper products contain lignin, other impurities and acid, making them unsuitable for use in the storage of photographic materials. Obtaining good quality paper products which comply with approved museum archival standards is a difficult and challenging task. It becomes even more such considering the fact that, in Greece, the availability of these products is very limited if not, in some cases, scarce to non-existent.

This can perhaps slow down the proper care process for the Photographic Archive but not stop it. What is needed is some extra effort in researching, testing, and improvising. The caretaker of the photographs has to be constantly informed and alert for the most reliable source for storage products. A lot of enclosures, any protective packaging or even boxes,
can be constructed in house once the right stock materials have been found.

The same parameters apply to plastic products as well. Not all plastics are safe for storing photographic materials. The recommended kinds of plastics are as follows: polyester (mylar), polyethylene, and polypropylene.
An important component of a sound preservation program is a disaster plan. This is an area that is mainly overlooked, perhaps, because man-made or natural calamities do not happen very often. Consequently, we tend not to think about them or even to consider that such a thing can occur. When they do happen, however, they can be very disastrous to any collection as well as to a photographic one, and many times it’s too late for salvage.

If the sudden happening of a disaster is devastating, unpreparedness and ignorance in the recovery procedures can cause irreversible damage or even total loss of the photographic collection. Only the thought of this possibility should trigger an immediate response of awareness and a forceful movement towards constructing an efficient disaster plan. It is advisable that the Benaki Museum consider a main disaster plan as well as separate ones corresponding to each one of its collections. This is more likely the case because of the diversity of their material nature and therefore their physical properties.

The two most common calamities to consider in the Photographic Archive are fire and flood. This is not only because they are the most possible to ever happen, but also because they are the most disastrous to photographic materials. A disaster plan should be pertinent to these disasters and include preparedness and recovery procedures.

The human input in such disasters is very crucial since
the salvage of affected photographic materials requires quick and efficient action. All staff should have complete knowledge of the plan and know her or his responsibility during an emergency response. Because the staff can be a limited force for such an immense task other reliable persons should be considered and also officially be included in the plan. Some informative training is absolutely necessary because as mentioned earlier, ignorance can be an extra, more definite disaster.
THE BENAKI MUSEUM HISTORICAL ARCHIVES PHOTOGRAPHY COLLECTION

This photography collection is part of the Historical Archives and consists of about four thousand late nineteenth to mid-twentieth century original photographic prints of the albumen, collodion, silver gelatin type in various sizes with a majority of cabinet style cards. It serves predominantly as a resource of visual information to scholarly researchers. Needless to mention again that if this function is desirable to be in effect for much longer an appropriate care should be taken very soon. The fact that this collection is stored in the basement, where the department of the Historical Archives is located, gives a warning signal without question. Since this is the most inappropriate location to store photographic materials, it is like looking for trouble, and the signs of such trouble are certainly already evident within the collection. The folders where the photographs are kept, show growth of mold and the glassine part of the files where are intimately housed, before being placed in the folders, is stained and cockled. The photographs themselves have a more or less image quality loss.

The prominent problem here is the high humidity, which is an obvious phenomenon associated with basements and a very difficult factor to control. Any device that can dehumidify this area should be used as soon as possible. As for a long term goal, this collection should be relocated to a more environmentally safe space.
CONCLUSION

The Benaki Museum Photographic Archive is an important Archive because of its holdings which include original photographic materials belonging to nineteenth and twentieth centuries. Their cultural, historic and artistic value is above question and makes them not only a significant compliment to the rest of the museum’s collections, but also an invaluable treasure in their own right. This must be recognized and hence, the fact that the Photographic Archive deserves a careful preservation.

There is perhaps a tendency of not thinking about preservation for the Photographic Archive because either it is not valued very much or it is expected to be there for ever, unchanged, ready to serve any interests. Unfortunately this is not true. Photographic materials are very vulnerable and more fragile than most can imagine. Careless handling alone can cause irreversible physical damage to them. If this is realized, perhaps the sometimes false attitudes towards the collection can be changed and its preservation become more accepted.

The existing statement concerning the Photographic Archive needs to be seriously re-examined and revised due to new acquisitions and some changes to the original directions. This should lead to a well defined, written ‘collection policy’ which is to state the role, as of now, and purposes of the collection. It should also include ‘acquisition policies’ as well as a ‘user’s policy’. From this first step, the right
preservation actions are going to be derived.

The present environmental conditions and storage space are quite inadequate, and they only contribute to further destruction of the collection. While visiting the Photographic Archive, I was informed about plans for a museum expansion which will offer new space for the collection. This is a good long term solution, if the new facilities are properly planned to meet the needs and usage of the Archive. Considerations to be taken into account are as follows: the need for creating spaces separate, but close to each other for storage, working area, reading/viewing room and offices. This may seem like a lot of space to be devoted to this collection alone, but realize that some of these areas do not need to be too large though they do require to exist as separate ones. No need to mention here that the new facilities should not only solve the present space problem, but also provide much needed climate control.

It is best to do the proper planning now, before construction, than modify the space later. Before any final decisions are taken, the right advice should be obtained from people who have expertise and are reliable not only for the actual construction but also in preservation matters. This new structure does not concern any building but a museum whose priority is the care for cultural treasures.

Concentrating again on the present situation, some priorities should be set. The main concern for now are the nitrate and acetate negatives. These are rapidly deteriorating; and in doing so, are threatening their total
loss while, at the same time, disastrously affecting the rest of the collection. Their immediate duplication and separate isolated storage is recommended.

As for the rest of the photographic materials, they should be thoroughly organized and a registration and cataloging system should go into effect. (See sample used at IMP/GEH). This way, a record is created for every item and also its location is known so that unnecessary handling of other not needed items can be avoided.

All original photographic materials should be handled with care and respect. No single original photograph is to become available to a researcher without a minimum of protection, which can be provided by an enclosure consisting of a protective cover and preferably a piece of archival board for support.

To minimize handling of originals, copy prints should be made. The present practice concerning this matter is rather questionable because original artifacts have to be transferred out of the museum and consequent handling may not be quite appropriate. This comment in no way intends to be an offense towards the person who undertakes the current copying needs of the collection. It only aims to cause some awareness about the many possible improper handling procedures which must eventually be eliminated.

Some preservation needs of the collection are currently covered by the paper conservation staff, meaning that they basically offer treatment to problems related to their training. Since, however, photographic materials need more
specialized treatment, acquiring it should be considered soon. It would be also quite helpful if some staff members are trained in identifying and handling of photographs by attending workshops or seminars on this subject.

Preservation is not a thought to pass by or a nice idea to give interest to the discussion of the day. A more serious commitment and involvement in practical terms is necessary. Conscious preservation practice should be exercised on a permanent basis.

I am rather hopeful in seeing this happening, considering how responsible and open to information and efficient solutions the curator of the Photographic Archive, Mrs. Fani Konstantinou, is. I am glad that I met her. She made me feel that they are still people who are willing and really concerned with offering the proper care to the cultural property with which they have been entrusted. In spite of the limited information available to her, I was surprised to witness such an understanding of some of the many complications involved in preservation. I have no doubt that if properly assisted by additional staff and above all financially, she can work things out the right way.

Proper preservation actions require proper funding. No matter how modest, an annual budgetary allowance should be allocated, if not already in existence for preservation. I hope that this survey brings some awareness to the need for preservation and that it also provides help in clarifying the specific preservation needs of the Photographic Archive. This can pave the way for funds to become available from possible
resources outside the museum, most possibly in the form of grants, so that necessary preservation activities start taking place.


ARTICLES


6. Christine Young, *Nitrate Films in the Public Institution*


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PLAN OF FIRST FLOOR
PHOTO COLLECTION

Many of the objects you are here to study are fragile and easily damaged. These guidelines will help prevent any damage from occurring.

You should expect to study only a limited number of original photographs during your appointment. Picture research is best done using the computer, card file, or library.

Pencils are to be used for taking notes; no pens or markers.

Candy, gum, food, and drink are not allowed in the Photographic Study Center.

Collection material may not be photographed. Study prints and slides may be ordered from the museum's Print Service.

Handle photographs one at a time, always using two hands to support the object.

Never touch the surface of a photograph with your hand, ruler, or any other object.

Wear the cotton gloves that are provided. They prevent finger grease and dirt from being transferred to the photograph, its protective sleeve, or exhibition mat.

To view photos lie them flat, preferably in the lid of the print case.

Always keep photographs face up.

Stack prints carefully, with smaller prints on top. Never slide photographs from one stack to another.

To remove interleaving, open the mat completely and with two hands lift the interleaving material from the print. Do not drag it across the print. Replace it in the same careful manner.

Do not remove any print from its mat or protective sleeve. If necessary, the archivist will do this for you.
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| VIII                           |
LIST OF SELECTED ARTICLES TO BE SUBMITTED TO THE BENAKI MUSEUM PHOTOGRAPHIC ARCHIVE

Submitting various articles, on the many aspects of photographic preservation, to the Benaki Museum Photographic Archive is a great necessity. Such literature is non-existent in Greece while at the same time the need for it is enormous. The selection is based on the specific preservation needs of the Benaki Museum Photographic Archive. Hopefully the information contained in these articles would be of great help to the curator and anybody else interested in preserving this Photographic Archive.


The information in this chapter can help in the forming of a "Collection Policy". It is useful, for the same purpose, the chapter five from the James M. Reilly's book Care and Identification of Nineteenth-Century Photographic Prints. To my knowledge this book is available to the Benaki Museum Photographic Archive.

This chapter gives a clear and concise overview of the environmental factors affecting the well being of photographs. More importantly, the various instruments used to monitor these factors are also described and illustrated.


This source can offer useful information in dealing with the present environmental conditions of the Benaki Museum; furthermore it can assist for the right decisions to be made about the climate control in the new facilities, when the expansion of the Museum takes place.


Good background information is given about the cellulose nitrate negatives and also various options in dealing with them at a museum/institution level.


Besides a short reference to the history of nitrate film, an actual and quite recent project on how to treat deteriorating nitrate negatives is described.

This report contains very comprehensive and up to date information about deteriorating cellulose acetate negatives.


This is a recent, detailed and well-done report about the health hazards that deteriorating negatives pose on the people handling them. This is perhaps the only study done specifically on this matter.


This is a very short article, filled, however, with a lot of still valid information about the early paper processes. It is a good source for a quick reference.


This is almost an outline of the very basic information which should be known by anybody concerned with the preservation of a photographic collection.

A very good outline of almost all the basic elements involved in preserving photographic collections. It contains valuable up to date information.


This article contains current guidelines on the preservation of the various types of photographic materials. It is basically an extended discussion of the above mentioned outline, which is also put together by the same person.


This is another article, which as it is indicated by its title, contains current issues and concerns in photographic preservation. It also helps in forming some understanding about this recently emerging field of photographic preservation.


This article contains very important information, resulting from the first extensive research specifically done on the disaster recovery of photographic materials.

This is a good outline of things to be considered in disaster planning.


This is the most complete, step by step guide in preparing a disaster plan.


This article is not directly related to photographic preservation. It does, however, demonstrate a very good example of how even a very small museum with limited funds can undertake some minimal but effective and not too costly actions towards preserving a collection.
INDEX TO SLIDES

1. The facade of the Benaki Museum.

2. Gilt incense-case with enamel ornamentation, 1613.


4. Oil painting of nineteenth century by Theodore Vryzakis, “Taking the Oath at Aghia Lavra”.

5. Traditional Greek costumes.

6. Gelatin silver prints - one colored - both adhered to a piece of board.

7. Gelatin silver print adhered to a piece of board.

8. Labels attached to the verso of the board.


10. >> >> >> >> >> >> 1927.

11. >> >> >> >> >> >> 1929.

12. >> >> >> >> >> >> 1927.


16. Front cover of album - some physical damage.

17. Interior of album (slide 16) - actual page warped - print in good condition.

18. Album with warped pages.

19. Inside front cover of album (slide 18) - lining sheet warped - extensive cockling of interleaving glassine sheet.

20. Album in excellent condition.

21. Interior of album (slide 20).

22. Cellulose nitrate negative in advanced stage of deterioration.

23. Cellulose nitrate negative taped onto a piece of glass - advanced stage of deterioration.

24. Discolored and embrittled envelope where nitrate negative (slide 23) was intimately housed.

25. Box filled with various remnants of nitrate negative deterioration.

26. Gelatin silver dry glass plate negative - stained and discolored due to being stored together with nitrate negatives.

27. Folder used for storing photographs at the Benaki Museum Historical Archives.

28. Interior of folder (slide 27) - stains of mold growth.

29. Files used for intimately housing the photographs at the Benaki Museum Historical Archives.
30. Wall-cabinet where photographs are stored at the Benaki Museum Historical Archives.