The Lippmann interference photography -

one of the most remarkable examples of early colour photograph technology

The history, technology, treatment, and preservation on the example of

Richard Neuhauss & Hans Lehmann's plates in the Preus Museum - Narath Collection

Proposal

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Background and draft

The Lippmann colour interference photography is one of the most unique and interesting examples of early colour photograph technology. Unlike most other - but no less complex - colour techniques around 1900, it does not use dyes or pigments but still delivers real, very permanent, and even true colour. This is very interesting, not only for the expert in the field of early colour photography but also for the general lover of early photography and photo history. In fact, it represents a landmark on the way to correct colour in the history of photography.

Today only a few institutions and collectors worldwide have original examples of these rare colour images in their possession. This fact has not so much to do with the fragility of the object as with its practical use and application at the time of its origin. However, because of the very special properties in terms of the technique itself, its presentation form, and its requirements for viewing, there is a clear need for additional awareness about this medium in the field of both photo history and photograph conservation, with special attention to the conservation and long-term preservation of this photographic material.

Preus Museum – the National Museum of Photography in Norway – has a significant collection of twelve Lippmann colour plates together with historic objects, books and papers related to these photographs.

Like many early photographic and colour photographic materials, the presentation and preservation advice seem similar. Nevertheless, the conservation challenges among these are often very different and extremely complex. While conservators have found different solutions for image preservation and recovery for the most common materials of our photographic heritage, useful solutions for many of the early colour photographic materials and especially the Lippmann interference photography, are almost not presented.

This project addresses this gap in numerous ways, by investigating this photographic technology, the consequences of using and handling these types of objects, and what this means for handling, presentation, and future preservation challenges.

A review of historic and contemporary literature to the topic together with earlier and current conservation approaches, will provide insight information to the history, technology, status of analysis, treatment, and preservation of early interference photography. The thesis will also provide information concerning the photographic technique itself and the different process steps that can affect the appearance and permanence. Characteristic presentation forms and housing types and their purposes will be described, along with damages and deterioration issues regarding for example mounting techniques, as well as the major challenge of the

deterioration of the photographic image itself. Special focus will be set on the original sealing techniques, its materials and compositions, and its influence on the stability and optical properties of the object and photographic material.

For this work, surveys need to be undertaken to investigate the condition of Lippmann colour in the most relevant collections holding this technique today. In addition to that a research sample set of colour plates will be produced after original instructions from one of the most known Lippmann photographers at the time around 1900 Dr R.G. Neuhauss. The aim is a better understanding of the individual process steps and preservation steps carried out at the time of making, the protective effect of the housing/mounting techniques and materials as well as the conservation challenges in other important collections. Findings from the surveys as well as material analyses from the sample set, earlier treatments reports and other relevant sources, will expectantly lead to improvements in the conservation and preservation of these unique photographic materials.
In addition, different pertinent and useful treatment procedures will be described that demonstrate the complexity of the photographic object type with its complicated structure of image material, image carrier and housing elements. The paper will also create recommendations for the long-term preservation, exhibition, and handling of these precious objects. The work will close with a view on contemporary Lippmann photography and a comparison to the historic examples.

Investigation subjects and research questions - Jens Gold

The ultimate goal of this research is to find excellent solutions for the conservation and preservation of historic Lippmann photographs in terms of stability, permanence and future expectations.

Research questions

- Materiality of Lippmann plates:
  - What are the major differences between plates from different makers?
  - What are the main damages, and can the damages be treated?

- Importance for Collections:
  - Does this research change our view of collections of Lippmann colour photographs or single photographs? Individuality of the handmade photographic object?
  - How can this research affect other collections with techniques of early photography colour and black and white?

- Importance for exhibitions:
  - How does the presentation form affect permanence?
  - What can be done to improve performance?
  - What can be done to restore Lippmann plates and what are the limits of restoration?

Literature research and situating my research contribution in relation to:

- Historic and contemporary literature about interference photography, including pre-Lippmann
- Conservation literature relevant to the topic
- Sources in contemporary practical interference photography

History and technology of colour interference photography

- What is interference and interference photography?
- Principals of the Lippmann technique
- Early attempts of interference photography
- Lippmann and the Nobel price
- French, German and other international theories and activities on the subject of interference (Lippmann, Lumiere, Zenker, Lehmann, Krone, Wiener, Valenta, etc …)
- Presentation and projection of the Lippmann plates

Positioning the Preus collection in collections worldwide

- Collections worldwide in the year 2024
- Preus-Narath collection history
- Lippmann plates in the Preus-Narath collection

- Relevant photographers: Richard Neuhauss & Hans Lehmann …
- Motives and locations
- Individual major differences observed.

Damages and permanence

- Damages and their characterization:
  - Damages and manipulations caused by the maker during production.
  - Damages caused during presentation / projection.
  - Damages developed around the time of making.
  - Damages developed over the time…

- Causes of deterioration and damages (artificial aging tests with samples ….)
- Delamination damages visible and invisible for the naked eye
- Similarities to other early photographic techniques
- Individual differences between makers, types, and presentations forms
- Major issues developed and displayed on sample material.

Material science and conservation

- The making of a project sample set for examination and testing.
- Experiments with the technique and its presentation forms
- Analysis of contemporary and historical materials
- Historical materials and their long-term behaviour
- Conservation treatments, chances, and their limitations
- Use of historical materials contra modern conservation materials.
- Treatments and treatment suggestions
- The borders of conservation treatment

The new Lippmann photography: What can new practices teach us about old photographs?

- Investigating new Lippmann photography and self-produced test samples of the technique.
- Overview of modern use of the technique.
- Contemporary materials.
- Preservation challenges with modern Lippmann plates.

Preservation

- Storage and long-term preservation
- Exhibition and handling
- Future expectations

Image page 1: Solar spectrum from 1901, plate made by Dr R.G. Neuhauss; Preus Museum Collection.