

# **DEVELOPING A CONCEPT FOR AN INDUSTRIAL ARCHIVE**



# Developing a Concept for an Industrial Archive

An Interactive Qualifying Project  
Submitted to the faculty of Worcester Polytechnic Institute  
in partial fulfillment of the requirements for the  
degree of Bachelor of Science

Randy Agudelo, Robaire Galliath, Phillip Heikoop

Submitted to: Dr. Rita Hofmann-Sievert, Ciba Association  
Advisors: Prof. Dirk Albrecht, Prof. John Orr

Zürich Project Center  
October 12, 2018  
Worcester Polytechnic Institute



**WPI**

**CIBACHROME**  
ASSOCIATION

This report represents work of WPI undergraduate students submitted to the faculty as evidence of completion of a degree requirement. WPI routinely publishes these reports on its website without editorial or peer review. For more information about the projects program at WPI, see <http://www.wpi.edu/Academics/Projects>

## **Abstract**

The Ciba Association has a large collection of documents and artifacts from chemical research done to develop Cibachrome, a positive-print photo paper, by Ilford Photo in Switzerland. In addition to their historical value, many of these documents still have applications in contemporary research. We worked with the association in developing a procedure to archive these items so that their value can be preserved. To achieve this we interviewed over twenty professionals across several disciplines such as chemistry, archiving, and conservation. We also visited institutions specializing in document digitization and conservation. Based on this research we developed a system to organize the collection and suggested methods to publish the collection and increase public awareness of its existence.

## **Acknowledgements**

First and foremost we would like to thank our sponsor, Rita Hofmann of the Ciba Association as well as Jean-Marc Métrailler of the Marly Innovation Center. Without the personal investment of Rita in the project and the work she put in arranging meetings with her former colleagues, this project would not have materialized as it has. The generosity and hospitality of Jean-Marc and the Marly Innovation Center in providing a workspace and lunch during our time in Marly was extremely valuable and much appreciated. Additionally, we would like to thank all the individuals and organizations that took the time to speak with us about our work and provide their input. Our final conclusions and results draw heavily from these discussions and interviews. A complete list of everyone we interviewed can be found in appendix B. Of course we would also like to thank our faculty advisors, Professors Dirk Albrecht and John Orr, for their valuable input and critique of this report during the writing and revision process, as well as ensuring that we remained on track and focused on our work. Finally, we would like to thank the Switzerland Project Center director, Professor Nancy Burnham, for the time and effort she spent working with the Ciba Association to provide us with the opportunity.

## Authorship

*Randy Agudelo, Mechanical Engineering 2020* Randy was responsible for taking interview transcripts and adding everything into the appendices. He also kept the team up to date and organized with the schedule, planning of each day, and meeting agendas. Additionally, Randy did initial setup and organization of the presentations.

*Robaire Galliath, Aerospace Engineering & Computer Science 2020* Robaire was responsible for managing communications with the sponsor, contacting interviewees and leading interviews. Robaire also took interview notes that eventually became much of the results section and created the diagrams found in the recommendations section.

*Phillip Heikoop, Mathematics 2020* Phillip was responsible for taking photos for the report and typesetting the final document. In addition, Phillip put together the example organization spreadsheets as part of the recommendations section of this report. Additionally, Phillip transformed much of Robaire's interview notes into sections of the report.

All team members contributed to the writing and revising of the project report, participated in interviews and site visits, and constructed and delivered the project presentations.



## Summary

### Designing an Industrial Archive

Randy Agudelo, Robaire Galliath, Phillip Heikoop

Sponsor: Dr. Rita Hoffman, Ciba Association

An Interactive Qualifying Project

Zürich Project Center, 2018

A wealth of chemical research was almost lost in 2013 when Ilford Photo's research and manufacturing site in Marly, Switzerland shut down. Ilford was best known for its photo products, especially Cibachrome, an analog color photographic process that was and in many ways still is the best in the world, but Ilford also ran a large research department that conducted groundbreaking work in dyes, coating technologies, and other fields. The Ciba Association, an organization comprised of former Ilford employees and photography enthusiasts, was able to save much of the research information from being lost. However, it is currently inaccessible to the general public and is hidden away in a room on the former site (which has since transitioned into an industrial complex providing work space for local companies). Much of the collection is composed of research lab notebooks, binders of monthly reports, and inkjet or photo prints on Ilford products. There is also some lab and manufacturing equipment, but this is of less importance than the aforementioned items. The goals of this project were to help the Ciba Association develop a plan for turning the collection into a proper archive that can be accessed by researchers interested in the information it contains. Specifically, the aims were to:

- (a) Determine the value of the collection to researchers and applications in modern technologies
- (b) Develop a procedure to organize the collection, using modern archiving practices
- (c) Describe the techniques, equipment, and software considerations of designing an archive
- (d) Create recommendations to improve public awareness of the collection and the Ciba Association.

Effectively achieving the goals of this project required knowledge of the Cibachrome product line and manufacturing process, the history of Marly, the goals of the Ciba Association, and the nature of the assets in the association's possession. This information was gained by conducting interviews with former Ilford employees, museum curators, conservators, and archivists, as well as by visiting museums and other institutions specializing in conservation, and inspecting the Ciba collection itself. Finally a draft of an archiving plan was created based on the information obtained through interviews, visits, and inspection of the collection and demonstrated to the sponsor for feedback. The feedback was then taken and used to prepare a final recommendations document.

## **Results**

It was found that there are still many applications of the research and work that was accomplished at the Ciba-Geigy site in Marly, particularly with the dyes and coating technologies. In interviews with former chemists and researchers at Ciba, several extensions of the initial nanoparticle research were brought to light. In particular, nanoparticle applications in modern digital displays utilize the same technologies and processes that were responsible for Cibachrome's vibrant color reproduction and long lifespan. The research also continues to find use in electronics manufacturing, the automotive industry, and printing. Former Ilford researchers have said that the research is being used in or by: organic solar cells and photovoltaics, quantum dot display technologies, organic light emitting diodes, pressure sensitive paints, flexible displays, 'Piq1' a Norwegian company using film for long term data storage and, the Swiss Federal Laboratories for Materials Science and Technology.

It was also determined that the Ciba collection contains information that would be beneficial for conservators working with Ilford photo products. Interviews with professionals suggested that the most significant obstacle in understanding how to properly care for an item is determining the chemical composition and behavior of the materials it is made of. Dye samples and photo products degrade over time and there is a particular need for chemical information of film and print photograph composition for conservation efforts to be most effective. There are industry standards for how to care for many more modern materials, such as photo paper, but the identification of the material still remains an issue. This is an active area of research, and one that is lacking in many resources on the composition of specific products. Knowledge of the process used to manufacture a material is also useful for conservation efforts. The technical reports and manufacturing recipes in the Ciba collection are highly beneficial to these researchers as it helps them to better understand the ageing and decomposition process of the material. While many photographic processes and technologies only have second hand accounts available on their functionality and composition, the records in the Ciba collection are primary source documents which gives an additional benefit to researchers.

Based on all the interviews and data gathering conducted in regards to archiving, the purpose of any archiving system can be distilled to a simple principle: the goal is to put the collection into a form where it is possible to locate an object, be it physically or electronically, access it, and then return it back to the same place for future access. Reproducibility of access is essential.

## **Recommendations**

It is vital that the collection be properly organized and sorted in order for the information it contains to be accessible and usable. As such, it is essential that the majority of the collection be organized prior to the implementation of the other recommendations.

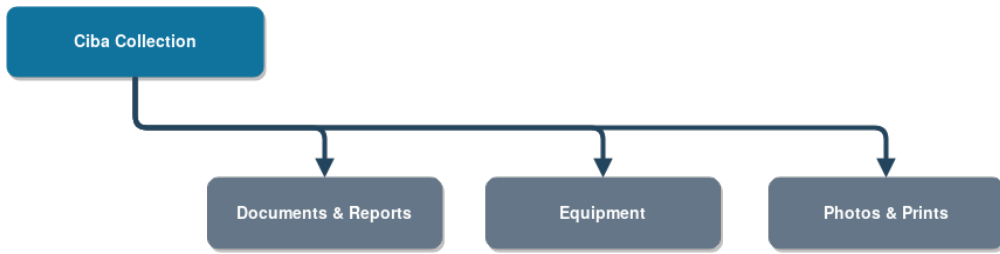


Figure 1: Top Level Collection Hierarchy

For the Ciba collection we suggest a hierarchical organizational schema, where objects are sorted first by type, then by topic, then by any further subcategories as required. To this end, we suggest the use of three primary, top-level categories: *Documents & Reports*, *Equipment*, and *Photos & Prints* (Shown below in Fig. 1). Every item in the collection would belong exclusively to one of these three categories.

Each of these three, top-level groups contains several sub-categories. Sub-categories are contextual to the items they are expected to contain. By beginning with few general categories and adding more layers to increase specificity, the structure of the organization remains clear and flexible. The process of creating categories and subcategories is largely a subjective procedure, dependent on how the archivist wishes to express the information in the collection. The groupings suggested in this report are a good starting point, but should be modified by the Ciba Association as they see fit. Figure 2 demonstrates the breakdown of subcategories within the organizational schema.

Notice that in *Documents & Reports* items are sorted into groups primarily according to subject matter, rather than strictly by the item’s medium (Fig. 2). It is logical to keep items about certain topics, such as monthly reports, together, even though monthly reports may have transitioned from paper to digital media. In comparison, *Photos & Prints* are sorted entirely by the media type (Fig. 2). Aware of the special considerations that must be given to the storage and care of photographic media, it is beneficial to store like items together thus simplifying the care and maintenance of the collection, as opposed to associating items by topic, motif, artist, or other quality.

Every item in the collection has a unique identifier associated with it (Fig. 3, 4). This identifier serves multiple purposes as it not only is a unique object ID, but it also describes an item’s location within the collection structure. The identifier is constructed based on an item’s position in the collection. Each identifier in the Ciba collection would begin in the same way, ‘CB’. Should a secondary collection come into the hands of the Association in the future, it should be given a different alphanumeric tag. However, this is an unlikely scenario and at this time every item should be given the ‘CB’ tag. For each additional sub category an item belongs to, an additional identifier is appended to the initial tag, delineated with hyphens. Figure 3 and 4 describe what each portion of the identifier signifies.

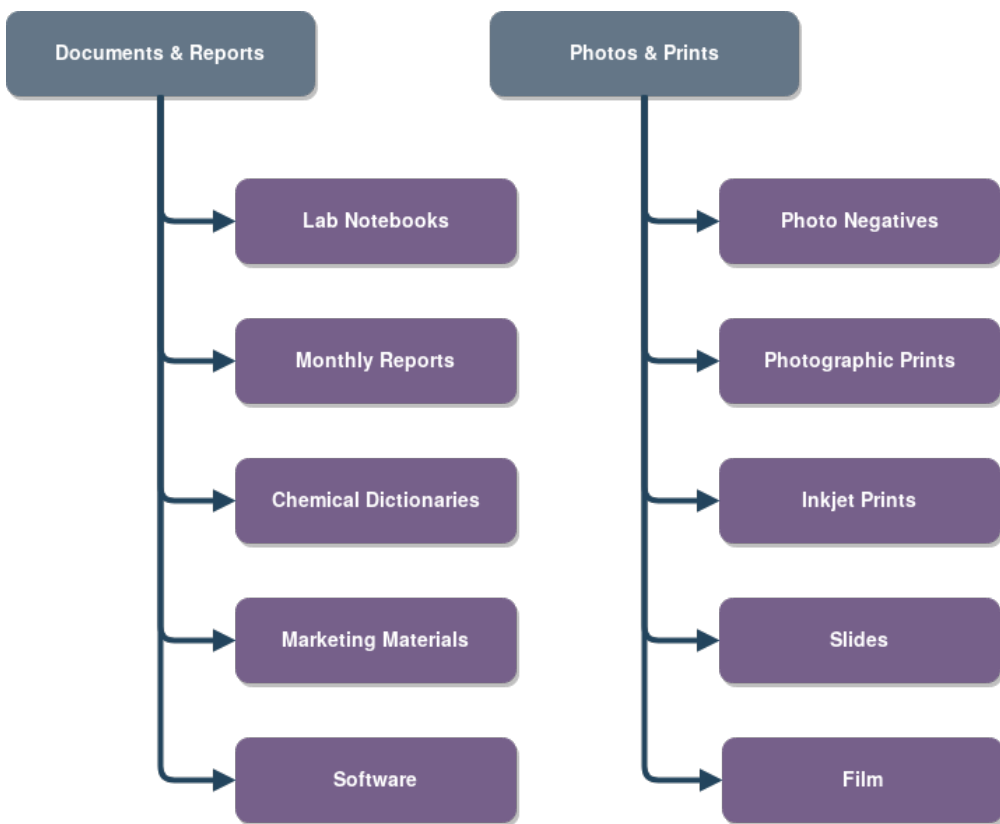


Figure 2: Groups and Subgroups

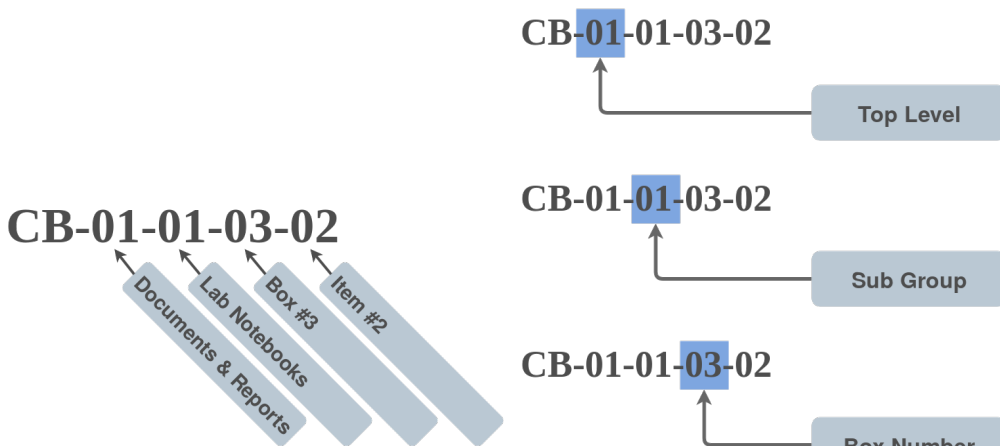


Figure 3: ID Explanation

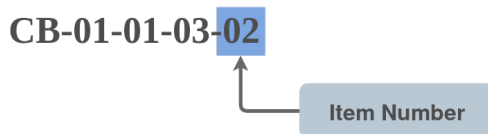


Figure 4: ID Example

Due to the size of the collection, it is necessary to prioritize which items should be organized, catalogued, and digitized before others. The collection contains a wide variety of assets. There are several hundred lab notebooks and research reports as well as assorted photo and inkjet prints and various pieces of machinery or lab equipment. The paper

documents are mostly standard sized notebooks and binders. In comparison there is a much greater degree of variability in the range of the photo and inkjet prints present in the collection. Some prints are as small as a postcard while others are significantly larger formats intended for wall mounting. High priority assets, such as the lab notebooks, have the most value to researchers. Low priority assets, such as the lab equipment, are of little importance to researchers interested in the Ciba collection. Most of the items in the *Documents & Reports* group should be considered high priority.

The easiest way for researchers to learn about the collection and to access information within it is over the internet. An online database allows for anyone to easily search the collection for any information they may be interested in. Additionally an informative website with curated information on the history of Ciba and Cibachrome would appeal to photography enthusiasts and the general public as a whole. The natural thing for a researcher to do when searching for information on a new topic is to use an internet search engine to look for information about it. The first result for a topic is generally a Wikipedia article, which can be a good source for broad information and further reading. There is already a Wikipedia article for Cibachrome (under Ilfochrome, a product name formerly used for Cibachrome) but the current scope of the article is limited. Adding information about the Ciba Association and Ciba collection to either that article or another would make it much easier for people to discover and eventually utilize the collection.

Archiving the Ciba collection and making it available to the world will prevent a huge wealth of information from being lost to time. The key steps this project identified to make this goal a reality are to implement an organizational system on the Ciba collection to transform it into a proper archive and to develop the necessary publicity the collection needs to reach researchers.

# Contents

<b>Abstract</b>	<b>i</b>
<b>Acknowledgements</b>	<b>i</b>
<b>Authorship</b>	<b>ii</b>
<b>Summary</b>	<b>iii</b>
<b>1 Introduction</b>	<b>4</b>
1.1 Purpose . . . . .	4
1.2 Goals . . . . .	4
1.3 Sponsor Description . . . . .	5
<b>2 Background</b>	<b>6</b>
2.1 Ciba Association, Cibachrome, Historical Significance to Marly . . . . .	6
2.1.1 The Ilford Site . . . . .	6
2.1.2 Marly and the Canton of Fribourg . . . . .	7
2.1.3 The Ciba Association . . . . .	8
2.1.4 Marly Innovation Center . . . . .	8
2.2 Archival and Museum Practices . . . . .	9
2.2.1 Archiving Process . . . . .	9
2.2.2 Digitization Technologies . . . . .	10
2.2.3 Digitization Methods . . . . .	12
2.2.4 Museum Organization Standards and Best Practices . . . . .	12
2.3 Publication of Assets . . . . .	13
2.3.1 Goals of Publication . . . . .	13
2.3.2 Publication Methods . . . . .	14
<b>3 Implementation</b>	<b>15</b>
3.1 Interviews . . . . .	15
3.2 Institutions . . . . .	15
3.3 Data Compilation . . . . .	16
<b>4 Results</b>	<b>17</b>
4.1 Interest in the Ciba Collection . . . . .	17
4.1.1 Modern Chemical Applications of Ilford Research . . . . .	17
4.1.2 Applications of the Ciba collection in Conservation . . . . .	17
4.2 Principles and Techniques for Archiving . . . . .	18

4.3	Publication of Museum Assets . . . . .	19
4.4	Interest in the History of the Ilford Site . . . . .	20
<b>5</b>	<b>Recommendations</b>	<b>21</b>
5.1	Collection Organization . . . . .	21
5.1.1	Hierarchy . . . . .	21
5.1.1.1	Purpose . . . . .	21
5.1.1.2	Structure . . . . .	21
5.1.1.3	Identifiers . . . . .	23
5.1.2	Care & Handling Procedures . . . . .	25
5.1.2.1	Storage . . . . .	25
5.1.2.2	Handling . . . . .	26
5.1.3	Prioritization . . . . .	26
5.1.4	Organization . . . . .	26
5.2	Publication . . . . .	28
5.2.1	Wikipedia Article . . . . .	29
5.2.2	Informative Website . . . . .	29
5.2.2.1	General Information . . . . .	29
5.2.2.2	Ciba Association . . . . .	29
5.2.2.3	Database Access . . . . .	29
5.2.3	Digital Archive & Databases . . . . .	30
5.2.3.1	Metadata . . . . .	30
5.2.3.2	Digitization . . . . .	30
5.2.3.3	Data Formats . . . . .	31
5.2.3.4	Software Options . . . . .	32
5.3	Outreach . . . . .	33
5.3.1	Traveling Exhibition . . . . .	33
5.3.1.1	Contents & Story . . . . .	33
5.3.1.2	Partnering with Institutions . . . . .	33
5.3.2	Journals . . . . .	33
5.3.3	Conferences . . . . .	34
5.4	Long Term Objectives . . . . .	34
5.4.1	Student Projects . . . . .	34
5.4.2	Oral Histories . . . . .	35
5.4.3	Distribution . . . . .	35
<b>6</b>	<b>Conclusion</b>	<b>35</b>

<b>References</b>	<b>36</b>
-------------------	-----------

<b>Appendices</b>	<b>38</b>
-------------------	-----------

A	List of Acronyms . . . . .	38
B	List of People . . . . .	38
C	Collection Pictures & Archiving Example . . . . .	40
C.1	Storage . . . . .	40
C.2	Naming . . . . .	42
C.3	Labeling . . . . .	43
C.4	Collection Examples . . . . .	43
D	Cibachrome Examples . . . . .	50
E	Group photo with Rita Hofmann and Jean-Marc Métrailler . . . . .	52
F	Corporate History of Ilford . . . . .	53
G	Interview Notes . . . . .	53
G.1	Georges Baechler 8-30-18 . . . . .	53
G.2	Jean-Marc Boéchat 8-28-18 . . . . .	56
G.3	Kristina Blaschke 9/21/18 . . . . .	61
G.4	Alice Carver-Kubik 9/27/18 . . . . .	62
G.5	Sebastian Dobrusskin 9-20-18 . . . . .	64
G.6	Rod Parsons Wendy Ericsson, and Brian Sammartino 8-28-18 . . . . .	67
G.7	Sonja Fessel 9-13-18 . . . . .	69
G.8	Jean-Noël Gex 8-28-18 . . . . .	71
G.9	Corinne Goumaz 8-29-18 . . . . .	74
G.10	Gubler Labs (Rudolf Gschwind and D. Gubler) . . . . .	76
G.11	Rudolf Gschwind . . . . .	77
G.12	Jean-Marc Métrailler . . . . .	80
G.13	Jean-Luc Monteleone 8-29-18 . . . . .	81
G.14	Sylvie Pénichon 9-21-18 . . . . .	83
G.15	Werner Rutsch 8-30-18 . . . . .	85
G.16	Rolf Steiger Interview 9/17/18 . . . . .	88
G.17	Dieter Wyrsh 8-29-18 . . . . .	90

## List of Figures

1	Top Level Collection Hierarchy . . . . .	v
2	Groups and Subgroups . . . . .	vi
3	ID Explanation . . . . .	vi



4	ID Example . . . . .	vi
5	The Marly Innovation Center, formerly the Ilford site . . . . .	6
6	A copy stand for document digitization Licensed under Creative Commons Attribution 2.0 Generic License . . . . .	12
7	Top Level Collection Hierarchy . . . . .	22
8	Groups and Subgroups . . . . .	22
9	ID Explanation . . . . .	23
10	ID Example . . . . .	23
11	CB-03-03-04-01 Postcard, Black & White, Woman wearing a hat . . . . .	24
12	CB-01-03-01 Index Card, Chemical Formula . . . . .	25
13	Subcategory Example: Monthly Reports . . . . .	27
14	Subcategory Example: Inkjet Prints . . . . .	28
15	Box #1 in the 'CB-01-04' Group, Marketing Materials and Technical Publications . . . . .	28
16	An example of a lab notebook . . . . .	31
17	Example of a spreadsheet recording item details . . . . .	32
18	Detail of the different sheets for each subcategory . . . . .	32
19	Assorted lab notebooks are placed in a filing box. A single filing box can hold about 20 notebooks. It is possible to label notebooks individually or in groups. . . . .	40
20	Various marketing brochures, magazines, and books are placed in a filing box. Groups of similar items are given individual IDs on pieces of paper visible when the box is open. . . . .	41
21	A set of inkjet prints in placed in a photo box, given an individual ID and placed in a filing box. Seen on the label is the artist's name and characteristics of the item itself, such as 'color'. . . . .	42
22	Box labels indicate the group the box belongs to, 'CB-01-01' as well as its box number. Additional information about the contents of the box is recorded. . . . .	42
23	This item label contains the entire item ID, indicating its position in the organization hierarchy. Also printed on the label is information about the item, in this case the artist and the medium. . . . .	43
24	Labels are placed on boxes where they are easily visible, on the sides and front. It should be visible when the boxes are stacked or stored in shelves. . . . .	43
25	Overview of the collection room . . . . .	44
26	Overview of the collection room . . . . .	44
27	Example of a technical report . . . . .	44
28	Example of a binder containing technical reports . . . . .	45
29	Crate of Cibachrome prints . . . . .	45
30	Chemical dictionary . . . . .	46
31	Index card describing a chemical . . . . .	46
32	Example of an older lab notebook . . . . .	47

33	Example of a lab notebook . . . . .	47
34	Example of a lab notebook . . . . .	48
35	Example of a slide . . . . .	48
36	Example of a zip drive . . . . .	49
37	Example of a zip drive . . . . .	49
38	Cibachrome print, note the brilliant blues and reds . . . . .	50
39	Cibachrome print . . . . .	51
40	From left to right: Jean-Marc, Randy, Robaire, Phillip, Rita . . . . .	52
41	Chart describing the history of ownership for Ilford . . . . .	53

# **1 Introduction**

## **1.1 Purpose**

Industrial innovation is driven by scientific research and advancement. Often, due to the competitive nature of industry, technological advancements are kept confidential to maintain a competitive edge. Over time as technology changes and develops, what was once groundbreaking research in a particular field may be lost, hidden in a basement, or locked away in a filing cabinet, never to be published and made available to the general public to learn and benefit from. This is almost what happened to much of the research conducted by the Ciba-Geigy chemical company when its inheritor, Ilford Photo, shut down its manufacturing facility in Marly, Switzerland in 2013. Ciba-Geigy conducted a great deal of research in the process of developing new photography products and processes, such as Cibachrome, a positive-print photo paper known for its vibrant color reproduction and long lifespan. Years of research in various fields of chemistry, such as polymers and nanoparticles, was abandoned despite its potential or possible future applications. The Ciba Association saved much of the original research notes, reports, and documentation from the work done at the Ciba-Geigy facility in Marly. The information in these documents has many potential applications in other industries and technologies. Research in nanoparticles done at the facility has since found its way into modern inkjet photo papers, digital display technologies and other fields. Polymer research led to the creation of the first light cured 3D printing resins as well as the development of special polymers for contact lenses. Without a method to organize and access the documents in the Ciba Association's possession, it is possible new, groundbreaking applications of this original research can never be discovered. The purpose of this project is to assess how to best organize and publish the valuable information in the Ciba Association's collection.

## **1.2 Goals**

The main issue facing the Ciba Association is the lack of formal knowledge in the topics of museum management, archiving, conservation, and organization. In order to overcome this obstacle, the primary goal of this project is the creation of a manual detailing the exact steps the association should take to efficiently organize and care for the collection. Accomplishing this requires a comprehensive review of modern archiving and conservation practices. Based on the initial project description from the sponsor the following research questions were established:

What types of items compose the Ciba collection?

How are archives typically organized?

What considerations should be given to the care of items?

How are similar collections made available to the public?

Second to the design of an archive, the project goal is to assess the value of the information in the collection. Without a concrete understanding of the potential interest and applications for the research in the collection, it would

be very difficult to determine how to best publish the collection for access by the general public. To this end, the following research questions were established:

- Who is interested in the collection?
- What information is valuable to them?
- How can they get that information?
- How do researchers normally do so?

Based on these research questions, background research prior to the arrival in Switzerland, and discussion with the sponsor, a set of goals was created. The successful completion of the project goals would leave the Ciba Association in a better position to manage its collection and interface with the general public.

- (a) Determine the value of the collection to researchers and applications in modern technologies
- (b) Develop a procedure to organize the collection, using modern archiving practices
- (c) Describe the techniques, equipment, and software considerations of designing an archive
- (d) Create recommendations to improve public awareness of the collection and the Ciba Association.

### **1.3 Sponsor Description**

The Ciba Association is a nonprofit organization headquartered in Marly, Switzerland (Ciba Association, 2014). According to the association's founding constitution their aims are to:

- (a) ensure the stewardship of the Ciba-Ilford museum collection
- (b) enrich the collection with objects relating to the photographic and industrial heritage of Ciba - Ilford companies
- (c) support the organization of events such as guided tours, conferences and exhibitions
- (d) ensure the good management of the former manufacturing site of Cibachrome in Marly

(Cibachrome Association, 2014).

Volunteers compose the entirety of the association; the majority of these volunteers are former employees at the facility, with little to no experience in museum organization (R. Hofmann, personal communication, March 27, 2018). The association operates out of a house on the site of the Marly Innovation Center. A portion of this building has been allocated as a museum space for a small collection of cameras and photographic equipment, while the remaining space is rented out for events. In addition to this building the association has access to a room in the Marly Innovation Center, where the collection is stored.

## 2 Background

### 2.1 Ciba Association, Cibachrome, Historical Significance to Marly

#### 2.1.1 The Ilford Site

The Ilford site has had a strong historical impact on the community of Marly and the canton of Fribourg. Fribourg in 1935 housed a photo company founded by German expatriates called Telko. Ciba's eventual acquisition of Telko was one of the reasons they chose to construct a photochemical research facility in nearby Marly (J. Gex, personal interview, September 2018). Additionally, canton officials wanted to bring industry and money into the canton, and as a result, the canton cooperated closely with Ciba in choosing a location for the planned facility (J. Monteleone, personal interview, September 2018). Construction started in the 1960's by the Ciba corporation. The site in Marly was chosen by Ciba for its proximity to water and power utilities (J. Métrailler, J. Monteleone, personal interviews, September 2018). During its operation, the facility kept the majority of the activities and research projects largely secret. As a result, very little was known to the general public about much of the contributions to chemistry and photography that came out of the site (J. Gex, J. Monteleone, personal interview, 2018). As it stands, the site has several issues. It is located in the depression of a valley, in the flood zone of a nearby river. Additionally there was little concern for the environmental impact of construction and the long term energy efficiency of the site. The buildings are poorly insulated, taking huge amounts of power to heat in the winter (J. Boéchat, personal interview, September 2018).



Figure 5: The Marly Innovation Center, formerly the Ilford site

About 80% of the current buildings on the site (Fig. 5) are part of the original construction. At the site's peak, about 1200 employees worked at the facility. Hundreds came from Basel, but many also came from Marly and the rest of the canton (J. Métrailler, personal interview, September 2018). Between 1980 to 1985, about 2000 people were employed at the site (J. Gex, personal interview, September 2018). Work at the facility was focused on three main categories:

research and development of photo-chemicals, the development of polymers and photo-resins, and the manufacture of photography products. The site was responsible for several innovations in chemistry and photographic technology, such as the incorporation of nanoparticles in the photoproducts produced (J. Métrailler, personal interview, September 2018) and the development of polymers for contact lenses (J. Boéchat, personal interview, September 2018). The facility not only produced products for Ciba and Ilford brands, but also for third parties such as Hewlett-Packard (J. Métrailler, R. Steiger, personal interview, September 2018). However, photography was not a major part of Ciba's success, that was driven largely by its works in other chemical industries. Ciba had plans to move more research to Marly, including their entire Agricultural chemical division, but this never materialized due to economic troubles. In addition to economic troubles, the changing industrial attitudes to the conduct of research and development caused the model used by Ciba to become outdated (W. Rusch, personal interview, September 2018).

At the height of Ilford's research program, there was not a lot of internal confidence in the long term viability of the facility. This was driven by the disproportionate focus on pure research rather than the development and production of marketable products. As a result, Ilford had always been on the verge of insolvency (J. Boéchat, W. Rusch, personal interviews, September 2018). In the 2000's Ilford began to diversify, but it was already too late. The sudden, rapid decline of the photo industry struck them particularly hard (J. Gex, D. Wyrsh, G. Baechler, personal interviews, September 2018). Eventually production of Cibachrome was halted in 2011 and Ilford closed in 2013 (J. Gex, personal interview, September 2018).

### **2.1.2 Marly and the Canton of Fribourg**

The city of Marly originated as a Roman settlement and was named after the Roman officer that oversaw it. It was functionally a rest stop for Roman travellers passing through the region (J. Monteleone, personal interview, September 2018). Through the Middle Ages the city was mostly rural farmland, but was home to several convents and monasteries, as well as skilled craftsmen. In the 15th century a paper mill was opened in the town, that continued operation until the 20th century. It was also in the 20th century that the bridge between Marly and Fribourg was built (J. Monteleone, personal interview, September 2018). Prior to the construction of the Ciba site, Marly was composed of three smaller, separate townships. The site was located in the rough, geographic center of these areas and functionally united them into a single town. The entire land area of the site comprises roughly 16% of the usable land of the entire city of Marly (J. Boéchat, personal interview, September 2018).

The city of Fribourg has over 30,000 residents, significantly larger than the primarily rural community of Marly. Despite its close proximity to the city of Fribourg, Marly maintains an independent identity and culture (R. Sudan, personal interview, September 2018). Additionally, during the 1980's and 1990's the Fribourg art museum was internationally known, indicative of the strong cultural ties of the city to the photo industry (J. Gex, personal interview, September 2018). Even today, there is still a large photography community in Fribourg (C. Goumaz, personal interview, September 2018). In many ways Ciba had a strong impact of the identity of the city (J. Gex, W. Rusch, G. Baechler, personal interviews, September 2018).

Many employees at the Ciba site moved to Marly from Basel. This caused a disruption in the primarily French

speaking city of Marly. This large influx had a noticeable impact on the normal organization of life in Marly. Special agreements were made to allow children to attend German speaking schools, German shops opened, and German speaking areas developed (R. Sudan, D. Wyrsh, W. Rusch, personal interviews, September 2018). In order to house and provide services for the employees at the site Ciba-Geigy built housing and other infrastructure to support the increasing population. The city experienced a population boom, with the total population of the city nearly doubling (J. Boéchat, J. Monteleone, personal interviews, September 2018). Ciba quickly became one of the largest employers in the area (W. Rusch, G. Baechler, personal interviews, September 2018). In addition to the cultural impact, the site also had an impact on the University of Fribourg (UoF). Close cooperation between Ciba-Geigy and UoF led the development of an industrial chemistry program at the university, with occasional conferences held at the Ciba site (J. Boéchat, J. Gex, W. Rusch, personal interviews, September 2018).

In 2014, after the bankruptcy of Ilford, the council of the city of Fribourg tried to raise funds to save Ilford and the production. However, that plan proved to be insufficient to save Ilford (J. Boéchat, personal interview, September 2018). The Ilford Property Company, what would become the Marly Innovation Center, worked with the city to develop a plan to continue the utilization of the site and facilities in the long term (J. Boéchat, personal interview, September 2018).

### **2.1.3 The Ciba Association**

The Ciba Association formed almost immediately after the closure of Ilford in 2013. The association wanted to save as much of the knowledge and history of the site as possible. In doing so, the association's primary task was determining what material and artifacts were worth saving and what could be let go of. Their motivation was not just to preserve the history of Ciba and Ilford, but to also preserve as much of the research and technical knowledge as possible in the hopes that such information could be useful in other fields of research and industry (R. Sudan, personal interview, September 2018). While still very much focused on the history of technology of the site, there is also interest within the organization in photography as an art form and its history as a whole (C. Goumaz, personal interview, September 2018). The Ciba Association is open to the prospect of dividing the collection and donating it to different institutions and organizations that can properly care for it (C. Goumaz, R. Hofmann, personal interviews, September 2018).

### **2.1.4 Marly Innovation Center**

The Marly Innovation Center (MIC) came into existence in 2014, right after the bankruptcy and closure of Ilford in 2013. At the time, the goal of the MIC was to retain the existing tenants and companies present at the site (R. Sudan, personal interview, September 2018). Now the MIC and the city of Marly aim to expand the site, bringing in new industries and startups. There is a plan to build apartment buildings on the unused land, as well as new offices and industrial facilities (J. Boéchat, personal interview, September 2018).

## **2.2 Archival and Museum Practices**

Archiving, conservation, and museum management are complex sciences, typically requiring a formal education in fields such as art history and conservation. For this reason it is difficult for an organization, such as the Ciba Association, to effectively design and maintain an archive at a professional level. This preliminary research in the usual practices of museums and other institutions specializing in archiving is designed to provide a brief overview and understanding of the necessary considerations to designing an archive.

### **2.2.1 Archiving Process**

An archive collects, organizes, and preserves records all in one place. It acts as a storage facility for documents and other records, typically with a strict set of rules defining how everything is organized. A museum is similar to an archive with the exception that it focuses on records and physical artifacts with a particular theme or topic to collect and display to the public (Fleckner, 1990, p. 67). Museums may not usually adhere to the strict organization of an archive, depending on their focus, size, and exhibit structure. However, many professional organizations such as the Society of American Archivists (SAA) and the Association of Swiss Archivists (German: Verein Schweizerischer Archivarinnen und Archivare) have been suggesting that museums maintain an on-going archive to preserve, organize, and update information on their collections to perpetuate the heritage of the museum and the local community for years to come. One of the most important aspects of an archival system is organization. Broadly speaking, an archive must be designed so that it is easy for its users to get the information they need out of it. To accomplish this, it is important to identify who the users will be as different users will have different needs (Bingham, A., 2010). Modern organizational schemes for museum assets are mostly based on digital systems. These systems offer a number of advantages over older pen and paper methods, primarily in accessibility. Digitization also allows museum curators to employ powerful strategies for analyzing their collection, determining what items are of most interest, creating rotating displays, and just generally managing the often vast quantities of items in their collection (Melton, M., 1996). From the perspective of a museum visitor, a well designed digital asset system allows them to see what items are on display, find specific items in the museum, and learn more information about items that could reasonably be included in a display (Bingham, A., 2010). Exposing assets digitally to the public also greatly increases a museum's reach, allowing people from all over the world to explore the collection without having to physically travel to the museum. As a result, online galleries and digital tours are valuable resources for engaging with the public.

When creating a digitization methodology, the technical abilities of the eventual users should be kept in mind and a system should be designed in a way that someone with minimal technical knowledge is capable of using it. The system should also be flexible and allow a person unfamiliar with the system to add new assets or update information about an asset without having to consult the initial users or the designer (Collins, F., & Arredondo, J., 2009). It is also sensible to plan for the long-term life of a database, how it will be moved, expanded, or otherwise maintained in the future (Burkart, et al., 2002). To this end, it is sensible to create guides to the system's usage that can be understood by future curators (Collins, F., & Arredondo, J., 2009). Another crucial factor to consider when creating an archival system is that the archive must be as complete as possible in order to be useful. All current assets must be entered



into the archive and all new assets must be added to it as they are acquired. The archive must always contain the most up-to-date information about the collection (Melton, M., 1996). The archived data must also be easy to access, and as such the archival system should include the capability to query, save, print, and cite desired information (Bingham, A., 2010).

### **2.2.2 Digitization Technologies**

Digitization is the process of converting information about an item into a digital format that can be understood by computer systems or electronic devices. This can be utilized to varying degrees. For example, a simple digitization technique would merely record basic information about an item (a description, keywords, identifier, etc) while a more advanced one could completely replace the physical item with a digital representation. Digitization is an important technique for conserving assets. Prior to the wide accessibility of computers and word processors, most records were stored on media that can decay over time, such as paper and microfilm. It is necessary to duplicate these assets into a format better suited for long-term storage before they begin to decay and lose information. It is also possible for digital mediums to decay over time or otherwise become inaccessible, such as CDs and floppy disks. However, today the majority of the world's data is stored by third parties, such as Amazon and Google, in large facilities (Amazon, n.d.). Most of these services guarantee redundant and persistent storage at a low cost, solving most of the problems posed by traditional digital media. Using Amazon as a specific example, their Standard S3 storage solution guarantees an uptime of 99.99% and a data retention rate of 99.999999999% (Amazon, n.d.). The primary benefit of digitization over other storage methods is that items can be easily copied, reorganized, and transferred over the internet. For an organization wishing to digitize their collection, it is tempting to outsource the entire process to an expert third party. However, it is very often the case that it is simply too expensive, especially for smaller institutions operating on little to no budget (Burkart, et al., 2002). The Ciba Association falls into this category, and so it is necessary to expand on the technical aspects of digitization with the expectation that it will be completed in-house.

For particularly large collections, an automated digitization system can speed up the entire archival process significantly. A common method to automate the digitization of text-based resources is Optical Character Recognition (OCR). OCR takes an image of text print, from a newspaper for example, and converts it into a digital format such as PDF. In practice, OCR replaces the role of a human in transcribing a physical record into a digital one. Properly implemented OCR can accomplish in a matter of days what would have taken a team of people several years to accomplish. However, the one big disadvantage to OCR is that records may not be transcribed accurately. Whereas a human can transcribe text with near-perfect accuracy, an automated system is more prone to error. With a proper implementation, this effect can be minimized. Additionally, OCR is not capable of recognizing images, tables, or figures from the scanned documents it is processing. OCR typically only handles printed text with consistent spacing and formatting. One particular advantage of OCR is that it is key to developing an easily searchable and accessible dataset as records are stored as text, rather than as images. As discussed by Christy et al. (2018), “the humanities require that these documents are available not as images but as keyed text. If all that is preserved are page images, some of them with very inconsistent and obfuscatory metadata, they will become part of a ‘dark archive’—preserved but fundamentally undiscoverable by

search algorithms” (p. 2). Using OCR ensures that the digitized records can be easily found later on. As Christy et al. describe, not having a text record makes it very difficult for a researcher to find the data they are looking for as they would have to manually search through thousands of images looking for what they need. Furthermore, text records take up much less space compared to image files. When digitizing more than a few hundred records, this can have a significant impact on the total amount of storage needed.

The process used by the University of Saskatchewan for digitizing their collection of unique and uncommon music has several interesting points that may be useful for other, more general digitization efforts. The university had accumulated a large collection of physical music both in the form of recorded material and sheet music. They wished to digitize it in order to ensure the collection’s longevity and to provide greater access to items that may not exist anywhere else. They began by publishing a small sample of the total collection. This is useful as it allows for feedback on the digitization system to be given and changes based on that feedback to be implemented before committing to the much larger task of digitizing the entire collection. During the digitization process, the university also created copies of the material in multiple formats and qualities. Notably, scanned images were created both in high resolution for conservation purposes and in a lower resolution more suited to public access. The entire collection was organized using the MARC metadata schema, which is discussed in section 2.2.3 (Doi, 2015). Considering that most of the Ciba Association’s assets are hand written lab notes, it will be necessary to take a high resolution digital photograph of each page in order to maintain as much detail as possible from the original copy. Attempting to serve such large files over the internet during queries will drastically impact the responsiveness and ease of use of the system. The University of Saskatchewan’s solution of presenting lower-resolution images in queries is a potential solution for ensuring the system’s usability. Full resolution images can be made available if the user explicitly selects them.

A framework developed at Yale splits the consideration of the methodology for digitization into five parts: choice, quality, integrity, longevity, and access. Choice refers to the choice of assets to digitize and quality refers to the desired quality of the digitized items. Integrity is distinct from quality in that it is the acceptable state of realized digital item, i.e. what constitutes a well-digitized item. Longevity and access refer to the long-term storage and the access available to digitized objects, respectively (Michael Seadle, 1998). Of these five parts, the most relevant to the situation of the Ciba Association are choice and access. It is necessary to examine the assets and determine which ones can be feasibly digitized. The choice of which assets to digitize is also dependent on the relative interest in them. It would not make sense to invest time and money into digitizing assets that do not have any value rather than digitizing the assets that are highly sought after. The stakeholder interviews discussed in section 3.1 are vital to the ‘choice’ process. Similarly, access to the assets is extremely important to the Ciba Association. Their primary goal in digitizing the assets in their collection is to make them easily and publicly available. Determining how to best make the assets available is also highly dependent on the stakeholder interviews. The methods and terms of access must be designed to best meet the needs and wishes of the primary stakeholders.

### 2.2.3 Digitization Methods

Typical document digitization is accomplished using a high quality digital camera or document scanner. Camera based systems are often more versatile and can be used to digitize a wider range of assets. However, this versatility often comes at a higher cost as a specialized camera and lighting equipment is needed (Figure 6). It may be possible to borrow such equipment from university libraries or historical preservation societies in Switzerland. This is the preferred solution, assuming such a situation can be arranged. Other items that do not lend themselves readily to digitization, such as large lab equipment, will simply be photographed to sufficiently communicate its form or function at the discretion of the person performing the digitization. The actual digitization process would occur either after, or in conjunction with the organization process. Photographs should be captured in TIFF format, at the highest possible resolution. These images can later be downsized automatically for web applications. Other formats, such as JPEG should be avoided as they do not preserve all the captured information (Carlson, A. personal communication, April 2018). Images will be named the same as the document's unique ID (ID formatting is discussed in section 5.1.1.3). For example, the photograph of document CB-01-02-03 would be named CB-01-02-03.TIFF. If multiple photos are taken of the same document, an additional identifier field will be created and iterated.



Figure 6: A copy stand for document digitization  
Licensed under Creative Commons Attribution 2.0 Generic License

### 2.2.4 Museum Organization Standards and Best Practices

The Machine-Readable Cataloging (MARC) metadata standard is a very common format for libraries and other organizations to use for their collection databases. MARC is an international standard and has been in use since it was first developed in the 1960's. The original format has a fairly cumbersome binary format, designed to operate with the con-

straints of computers at the time. Since then, multiple updated formats have been developed to make metadata records more accessible and to make full use of more advanced technology. One of these updated formats, MARCXML, was developed and adopted by the Library of Congress. MARCXML has several improvements over the original MARC, most notably that it is easy for computers to parse. This enables MARCXML records to easily be searched, analyzed, and transmitted (Network Development, & MARC Standards Office., n.d.). Even with the advent of improved MARC formats, there are still many who advocate for it to be abandoned. Arguments against MARC include it being very old and outdated, it being very esoteric and unknown outside of those who administer electronic catalogs, and it being difficult to transfer data from MARC into another format (Tennant, R., 2002). However MARC is presently very much entrenched with there being millions of existing records and no clear alternative to migrate to (Smith-Yoshimura, et. al., 2010). The Library of Congress has set up the BIBFRAME project to develop a replacement for MARC that addresses its shortcomings. One of the goals of the BIBFRAME project is to allow straightforward migration from MARC to the format that is eventually developed (Library of Congress, n.d.).

MARC only serves to define digital formats to be used with more flexible organizational schema. The Society of American Archivists publishes such a schema, Describing Archives: A Content Standard (DACS), based on the General International Standard Archival Description created by the International Council of Archives. DACS is designed to utilize the MARC metadata standard as a technical implementation, but defines its own naming and organization system. The standard defines the following organization hierarchy: Record Group, Subgroup, Series, File, Item. Each item in a collection is assigned a unique code, which identifies its place in the aforementioned categories. A record CB-01-03-01-04 represents the fourth Item in File one of the third Series of Subgroup one of the Cibachrome Record Group (Society Of American Archivists, 2017). As items are categorized, their unique ID is also added to a master ledger along with a brief description of the item. This can then be used later on to quickly identify and locate individual assets in the collection. Similarly to the ledger, the ID should also be used as the main identifier for an asset in any digital database or online system.

## **2.3 Publication of Assets**

### **2.3.1 Goals of Publication**

Per the sponsor, the goal of making the Ciba Association's assets publicly available is to allow interested parties to benefit from the collection's contents. The association's assets are currently held in private storage, without any sort of organizational scheme. Someone that is interested in gaining access to the Ciba collection has no clear avenue in doing so. Additionally, there is no clear description of the assets in the collection available to those interested in the collection. This lack of readily available information causes several further problems. It reduces awareness and interest in the association and obfuscates the purpose of the association as a whole. Presenting the assets in some form online solves all of these issues while also fulfilling the Ciba Association's founding mission and goal to preserve and share the Cibachrome heritage.

### **2.3.2 Publication Methods**

Given the Ciba Association's lack of budget and full-time employees, the sponsor has expressed that the assets will be published digitally as opposed to maintaining a full time museum (Hofmann, R. personal communication, March 2018). Thus the available methods for publishing the Cibachrome assets coincide with the methods of digitization discussed in section 2.2.3. Speaking broadly, the exact implementation of these methods must be such that the assets are best made available to all of the stakeholders. Since the publication method is so deeply tied to the needs of the stakeholders, expressing and evaluating their needs will be a major component of exposing the assets. Although careful consideration must be given to the target audiences, there are several assumptions that can be made immediately. There must be a general, public facing domain. To this end the Association maintains a website at [www.cibachrome.photo](http://www.cibachrome.photo), however the site is extremely simple, with little to no information about the collection. The website will need to be significantly redesigned, not only to function as a 'face' for the Association, but must also provide access to their digitized collection. A website has to potentially cater to a variety of different groups, from the general public to researchers if it is structured properly. Whether such a website would be hosted by the Association themselves or by a third party is not immediately clear. Implementation will be discussed further in the next section, the key takeaway at this point is the value of a web built website cannot be overstated.

## **3 Implementation**

Effectively achieving the goals of this project required knowledge of the Cibachrome product line and manufacturing process, the history of Marly, the goals of the Ciba Association, and the nature of the assets in the association's possession. This information was gained by conducting interviews with former Ilford employees, museum curators, conservators, and archivists, as well as by visiting museums and other institutions specializing in conservation, and inspecting the Ciba collection itself. Finally a draft of an archiving plan was created based on the information obtained through interviews, visits, and inspection of the collection and demonstrated to the sponsor for feedback. The feedback was then taken and used to prepare a final recommendations document.

### **3.1 Interviews**

Interviews were conducted with a wide range of people in order to obtain the data needed to fulfill the project goals. The sponsor worked closely in arranging interviews, and many of the people interviewed had either personal or professional connections with members of the Ciba Association. The interviews can be sorted into three categories: former Ilford / Ciba employees, conservators, and archivists / museum curators. Former Ilford / Ciba employees were interviewed in order to gain historical and technical context for the Marly site, the research done there, and on the Cibachrome product itself. Interviews with conservators were conducted with the goal of understanding what information they would be interested in from the Ciba collection. They were clear examples of technical professionals whose work could benefit from the publication of the collection, and improved accessibility to its contents. Finally museum curators and archivists were interviewed to learn how institutions would generally go about organizing and archiving a collection like the one held by the Ciba Association. Several members of the Marly community were also interviewed to gain historic context to the Ilford site from the perspective of citizens not employed at the site. As recommended by the sponsor, the interviews were conducted in a casual style without a strict line of questioning. Each individual has a unique history and perspective, and this interview structure allowed them to talk at length about what they found most important. A full list of interviewees along with descriptions and contact information can be found in appendix B.

### **3.2 Institutions**

Institution visits were conducted with the same motivation as the interviews, but with a greater focus on learning about the practicalities of archiving, conservation, and physical implementation. The intent was to visit institutions working on projects similar in scope to the work that must be done with the Ciba collection. Visits to these sites also contained discussion with the professionals working at them, but in a less formal capacity than the actual interviews. Two museums were also visited: The Fotomuseum Winterthur, a contemporary art museum, followed by the Swiss Camera Museum. The document digitization lab, Gubler Laboratory, a small company that offers services in records management and digital archiving, was the primary institution visited to gain a better understanding of archival and digitization processes. Interviews with Gubler staff and board members were also conducted during the course of the visit. The Hochschule der Künste Bern (HKB) was a major source for information related to conservation. The HKB

campus and labs were toured with the sponsor and a brief meeting was held with the vice president of the European Confederation of Conservator-Restorers' Organisations, Sebastian Dobruskin, which was later supplemented with a more formal interview.

### **3.3 Data Compilation**

The interview data was recorded in two forms: shorter notes of broad ideas and important information and more detailed (though not-literal) recordings of what the interviewee had to say. These interview documentation can be found in appendix G. After all the interviews were completed the entire set of notes were reviewed and collated into groups based on specific ideas or concepts that were common across interviews. Information about a specific topic was supplemented with individual details from each interview. For example, one topic group was about the potential further applications of research that was conducted at Ciba-Geigy and Ilford. Snippets from various interviews that related to this topic would be combined into one document. This process made it easier to understand and process the interviews into usable information about topics relevant to the Ciba Association. Data from institution visits consisted of short notes of important ideas, considerations, or details recorded either during or after the visit.

With the interview data and notes from institution visits in mind, the Ciba collection itself was visited. The size, state, and contents of the collection were all assessed. Photographs of various items in the collection and examples of archiving organization can be found in appendix C. Combining the information gathered while visiting the physical collection with the previously obtained interview and institution visit data, an organizational schema and archival plan was developed and applied as an example to a small subset of the Ciba collection, demonstrating how to assign IDs and box items under the schema. Examples of the labelling and organizational system that was developed as a result of this visit is found in section 5.1. Visiting the collection provided an opportunity to implement and test the organizational system and make any changes to it before completing this report. Feedback from the sponsor on the organization system was also taken into account in the revision of the archive design. Visiting the collection also provided a better understanding of the quantity of items and the diversity of items housed. There were significantly more prints than expected, as well as a moderate amount of laboratory glassware and miscellaneous equipment.

## **4 Results**

This section of the report lists all of the findings and data that were collected during the course of the project and offers analysis of them. The data comes from interviews with Ilford and Ciba-Geigy employees, archivists, conservators, curators, and artists. Additional data was also collected from visits to the Ciba collection, the Marly Innovation Center, the canton archive of Aarau, and museums. The information is organized into results concerning the public interest in the Ciba collection, results on archival and organizational techniques, and results on publishing and distributing museum and archival collections.

The Ciba Association has also expressed that the interview notes and transcripts gathered are themselves of value to the association. These are included in the appendix G of this document to avoid cluttering the results section, which is focused on synthesizing the key information gained through the interviews.

### **4.1 Interest in the Ciba Collection**

#### **4.1.1 Modern Chemical Applications of Ilford Research**

There are still many applications of the research and work that was accomplished at the Ciba-Geigy site in Marly, particularly with the dyes and coating technologies. In interviews with former chemists and researchers at Ciba, several extensions of the initial nanoparticle research were brought to light. In particular, nanoparticle applications in modern digital displays utilize the same technologies and processes that were responsible for Cibachrome's vibrant color reproduction and long lifespan. The research also continues to find use in electronics manufacturing, the automotive industry, and printing. Former Ilford researchers have said that the research is being used in or by: organic solar cells and photovoltaics, quantum dot display technologies, flexible displays, organic light emitting diodes, pressure sensitive paints, 'PiqI' a Norwegian company using film for long term data storage and, the Swiss Federal Laboratories for Materials Science and Technology (R. Steiger, J. Gex, W. Rusch, personal interviews, September 2018).

#### **4.1.2 Applications of the Ciba collection in Conservation**

Interviews with professionals suggested that the most significant obstacle in understanding how to properly care for an item is determining the chemical composition and behavior of the materials it is made of (S. Dobrusskin, A. Carver-Kubik, S. Pénichon, personal interviews, September 2018). Dye samples and photo products degrade over time, there is a particular need for chemical information of film and print photograph composition for conservation efforts to be most effective. There are industry standards for how to care for many more modern materials, such as photo paper, but the identification of the material still remains an issue (S. Dobrusskin, A. Carver-Kubik, personal interviews, September 2018). This is an active area of research, and one that is lacking in many resources on the composition of specific products (S. Dobrusskin, personal interview, September 2018). Knowledge of the process used to manufacture a material is also useful for conservation efforts. The technical reports and manufacturing recipes in the Ciba collection are highly beneficial to these researchers as it helps them to better understand the ageing and decomposition process of the material. While many photographic processes and technologies only have second hand accounts available on



their functionality and composition, the records in the Ciba collection are primary source documents which gives an additional benefit to researchers (S. Dobrusskin, A. Carver-Kubik, personal interviews, September 2018).

## **4.2 Principles and Techniques for Archiving**

It is important to decide on and commit to an approach before beginning to archive a new collection. To this end it is sensible to define an end goal and work backwards from there to decide how to organize the information available (B. Spalinger, personal interview, September 2018). For public-facing archives it can be helpful to create a “narrative” for the collection which helps tell the story of the items. In many cases this will naturally manifest through chronological organization. Telling a story in this way both helps with engaging laypeople and aids researchers in gaining a broader understanding of the context the collection exists in (B. Spalinger, W. Ericsson, personal interviews, September 2018). When designing industrial archives, it can also be useful to group items together in a similar way to how they would have been organized in the industrial context. That is, group manufacturing items together, corporate records together, etc (B. Spalinger, personal interview, September 2018).

The maintenance and storage of an archive can be quite expensive even when it is done correctly. However, a poorly designed archive, while initially cheaper and easier to implement, can lead to higher costs in the future when compared to a properly designed and maintained collection. Considerations such as the optimization of storage space and proper labelling and storage of items increase initial costs but make an archive easier and more cost effective to maintain. For this reason, it is important to store and organize the collection effectively and efficiently (A. Carver-Kubik, S. Feßel, personal interview, September 2018). If one wastes space by not properly organizing the collection, both money and space is lost. One way this can be avoided is by having the photos and prints be organized and stored according to size. This helps maximize space efficiency and ensures similar objects are stored in the same conditions (S. Feßel, personal interview, September 2018).

One would expect that modern archival techniques would have a large emphasis on digitization and this fact was reinforced through interviews and discussions with archival specialists. Interviews with companies specifically focused on digital archiving provided further insight into this area. Many modern digitization companies have two main foci, the software development process and the physical digitization process. The development of software to curate and organize the data collection from the digitization process is fundamental. Without the ability to understand and organize a large collection of digitized media, the information it contains is all worthless. One particularly prevalent problem in the digitization process is the ability to properly read and record certain types of media. For example, financial records may have been stored on 3.5” floppy disks. While it is still possible to source floppy disk drives capable of interfacing with modern computer systems, the same cannot be said for more obscure media formats, such as Beta Max or even the relatively modern VHS. For large projects it becomes necessary to source era appropriate hardware to read different forms of media. This can quickly become expensive, time consuming, and space hungry. Overall the migration to digital data formats is a complicated, slow process (Gubler Laboratory, September 2018).

Interviews with digitization professionals also offered some insight into the standards used for digital archiving. One company shared details of the resolution, color depth, and file formats they worked with. For most consumer sized

paper (A4, 8.5" x 11") a target resolution of 500 DPI is sufficient to capture the information on the document. Small format media, such as film slides require higher target resolutions, typically around 4000 DPI. For opaque objects, 8-bit color depth is similarly sufficient. Transparent objects should use higher color depths, either 12-bit or 16-bit when possible. For documents that are photographed JPEG 2000 is typically an acceptable file format, despite its lossy compression compared to formats such as TIFF as the goal in digitizing text is not to preserve every detail but merely to capture the content. More complex media, such as cinematic film has no generally agreed upon file format. In such cases any modern format should suffice, such as MP4 or MKV (Gubler Laboratory, September 2018).

The data from the interviews with archivists have supported the view that digital publishing is the most sensible way to share an archive. Online publishing makes it extremely easy for different people, across the world, to access the information in the collection (S. FeBel, W. Ericsson, A. Carver-Kubik, S. Pénichon, personal interview, September 2018). Lab notebooks and other technical documents should not be edited in any way and should be left as they are in order for researchers and conservators to gain as much as possible from them. In the context of this project, that would likely manifest as direct scans of research notes and lab documents. In addition to a high level of technical information, the searchability of the information is vital to the effective use of the collection. Comprehensive metadata about the context of a document and OCR are valuable resources in creating a searchable database (S. FeBel, personal interview, September 2018). There are several different software solutions for the creation and maintenance of a digital archive. Most software packages cover the core functionality of a digital archive or collection, but often differ in exact implementation, ease of use, cost, and other features. Consideration to the cost and technical skill required to use the software is most important when deciding which software solution to use.

Based on all the interviews and data gathering conducted, the purpose of any archival organization or archival system can be distilled to a simple principle: the goal is to put the collection into a form where it is possible to locate an object, be it physically or electronically, access it, and then return it back to the same place for future access. Reproducibility of access is essential (A. Carver-Kubik, personal interview, September 2018).

### **4.3 Publication of Museum Assets**

Through interviews with curators and archivists along with discussions with the Ciba Association, it was determined that it will be best to have an online database to organize and archive the entire Ciba collection. A website is needed in order to gain access to the database. The website should strive to be a resource for people, a general hub for information about Ciba, Cibachrome, and the collection (W. Ericsson, personal interview, September 2018).

Many museums and institutions are endeavouring to allow digital access to their collections, both for researchers and the general public. This has led to changes in how museums process new items. The process used by the Philipps-Universität Marburg in Germany was studied as an example. At the Universität Marburg, whose collection is primarily composed of photo negatives along with some positive prints and photographic equipment, when items are taken in, each one is given a unique inventory number and information about the item, such as its size and composition, is manually recorded. After this process the item is handed to the digitization department, which digitizes the item and records further information about the media type. From this point, the physical asset is put into storage and the digital

version is uploaded to the institution's database. Most of the items in the collection are available online. It is very rare for researchers to show up in person to access an item as most people's needs can be met through the online system. Their online database is searchable by artist and subject. It also has a "curated" section aimed at the general public that focuses on certain topics, artists, and portions of the collection (S. Feßel, personal interview, September 2018).

#### **4.4 Interest in the History of the Ilford Site**

Within both the Marly community and the broader canton, there is both interest and motivation to preserve the history of Ciba and Ilford and the impact they had on the canton. The association is in a strong position to do this because many of the people who were directly involved in that portion of history still live and are active in the Marly community. During the process of interviewing former Ilford and Ciba employees, it became clear there was a great deal of information about the history of the site that was not written down or recorded in any way. Recording their stories and oral histories would be a great boon to preserving the history of Marly during this important period for future generations. Through the documentation of interviews, this project was able to capture some of the stories and oral histories of these people. Many individuals remarked that the development of the Ciba-Geigy facility had a huge impact on the city of Marly. Individuals involved in research and product development also spoke at length about the projects they worked on and the further applications of their work, much of which is not known to the public. Documentation of these interviews can be found in appendix G.

## 5 Recommendations

This section outlines our recommendations to the Ciba Association. It is split into several sections, each focusing on a different objective of the association. These recommendations are motivated by our own research and the interviews we conducted with experts in the fields of archival science and conservation. It is intended to stand on its own, assuming no prior knowledge of archiving or conservation practices, functioning as a manual or guide for the Ciba Association. For this reason and the desire to make this section as concise as possible, concrete justifications for our recommendations have been omitted from this document. Should the reader be interested in how we arrived at these recommendations we suggest they view the full project report, with detailed information on our research goals, procedures, and results. The full report is available on the Worcester Polytechnic Institute library website: <http://wpi.edu/library>

### 5.1 Collection Organization

It is vital that the collection be properly organized and sorted in order for the information it contains to be accessible and usable. As such, it is essential that the majority of the collection be organized prior to the implementation of the other recommendations in this document.

#### 5.1.1 Hierarchy

**5.1.1.1 Purpose** Any formally constructed archive, whether created by an educational institution, museum, or industry, has a predefined, organizational schema. This schema defines the overall structure of the archive, how objects in the archive are sorted, and how to find a specific item in the overall collection. There are several different approaches, dependent on the application and resources available to the organization creating the archive. Given that the Ciba collection is composed exclusively of items from the same company, it is logical to maintain an organizational schema that reflects, to a certain extent, the original organizational structure created by Ciba-Geigy / Ilford.

**5.1.1.2 Structure** For the Ciba Collection we suggest a hierarchical organizational schema, where objects are sorted first by type, then by topic, then by any further sub-categories as required. To this end, we suggest the use of three primary, top-level categories: *Documents & Reports*, *Equipment*, and *Photos & Prints* (Fig. 7). Every item in the collection would belong exclusively to one of these three categories. The structure is organized first by type as it is the best general, logical, and simplified format to follow compared to organization by topic as shown in figure 7. To sort by topic first would mean that there would be a plethora of main level categories and it would become confusing and overwhelming over time. Sorting by type simplifies the number of main level categories in the organizational structure to three. Each of these three, top-level groups contains several sub-categories. Sub-categories are contextual to the items they are expected to contain. This is largely a subjective procedure, dependent on how the archivist wishes to express the information in the collection. Figure 8 shows part of the organizational schema with categories within the *Documents & Reports* and *Photos & Prints* groups.

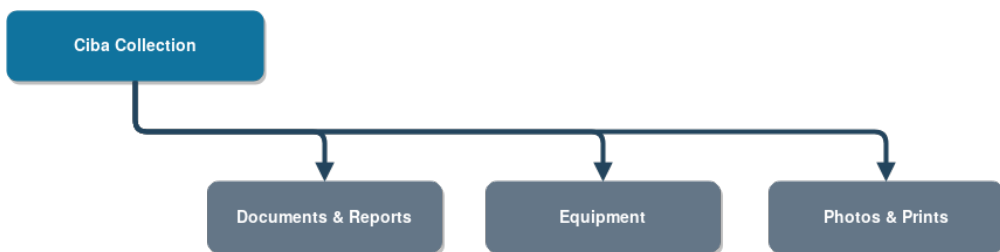


Figure 7: Top Level Collection Hierarchy

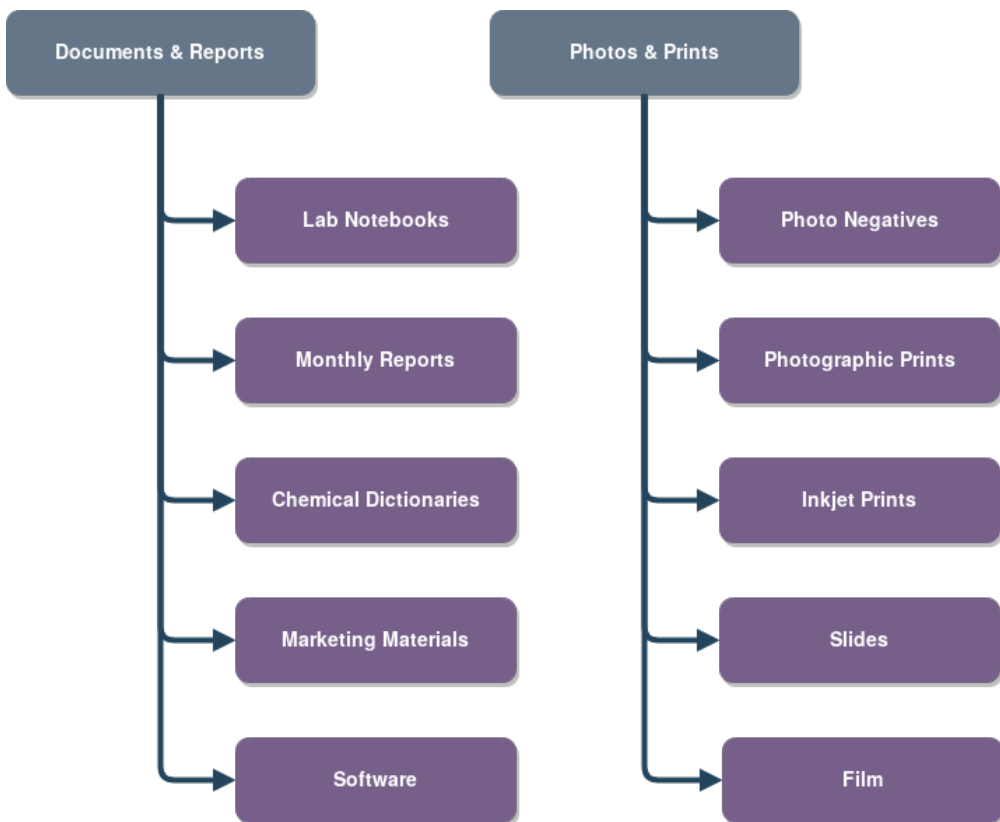


Figure 8: Groups and Subgroups

Notice that in *Documents & Reports*, as shown in figure 8, items are sorted into groups primarily according to subject matter, rather than strictly by the item's medium. It is logical to keep items about certain topics, such as monthly reports, together, even though monthly reports may have transitioned from a physical format to a digital format. In comparison, in figure 8 *Photos & Prints* are sorted entirely by the media type. Aware of the special considerations that must be given to the storage and care of photographic media, it is beneficial to store like items together thus simplifying the care and maintenance of the collection, as opposed to associating items by topic, motif, artist, or other quality.

It is important to note that these are just suggestions. At the discretion of the archivist it may be necessary to add a category, remove a category, or add further sub categories. There must be a balance between specificity of the hierarchical structure and its ability to naturally accommodate as much of the collection as possible. The organization process also provides a valuable opportunity to gain an overall view of the information in the collection and record

it. Rather than during document digitization, it is possible to collect item metadata during the organization phase, as discussed in section 5.1.4.

**5.1.1.3 Identifiers** Every item in the collection has a unique identifier associated with it. This identifier serves multiple purposes, not only is it a unique object ID, but it also describes an item's location within the collection structure. The identifier is constructed based on an item's position in the collection. Each identifier in the Ciba collection would begin in the same way, 'CB'. Should a secondary collection come into the hands of the Association in the future, it should be given a different alphanumeric tag. However, this is an unlikely scenario and at this time every item should be given the 'CB' tag. For each additional sub category an item belongs to, an additional identifier is appended to the initial tag, delineated with hyphens. Figures 9 and 10 describe what each portion of the identifier signifies.

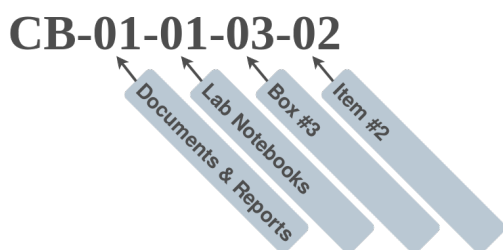


Figure 9: ID Explanation

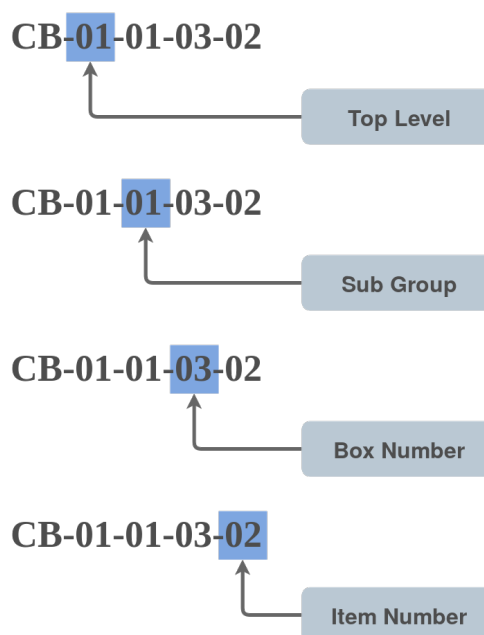


Figure 10: ID Example

Figures 11 and 12 are several examples of documents and their accompanying identifiers.



Figure 11: CB-03-03-04-01 Postcard, Black & White, Woman wearing a hat

This inkjet postcard (Fig. 11), would naturally fall under the *Photos & Prints* top level category, as indicated by 'CB-03'. Within *Photos & Prints*, it would belong in the third group, *Inkjet Prints*, resulting in 'CB-03-03'. Hypothetically, this specific item is in the fourth box belonging to *Inkjet Prints*, hence 'CB-03-03-04'. Within that box it is the

first item, thus the final identifier ‘CB-03-03-04-01’. These identifiers will help anyone interested in the collection to easily locate and withdraw an item and put it back exactly where it came from keeping the organization of the entire collection intact.

ADDITIV: *Lp 154*      Reinheit:      Eingangsdatum:      Reg.Nr. *72067*

HS *631 94*      *a = 0,9 fach*      Glasdatum: *2.7.78*

Chemical structure: Oc1ccc(cc1)C(=O)Nc2cc(O)c(O)c2

Silberkeil	0	4	6	11	16	20	24
100°D <sub>grau</sub>	3	3	3	13	58	101	133
100 fache Farblichten	B	G	R	Atlas 5000 L UV-P 20			
Schleier Ag-Keil	4	2	2	B	G	R	
Schleier CH-Ver.	3	1	1	1	0	0	
St. 24 CH-Ver.	21	21	25	14	15	14	
dummy XK Sakura	1	0	0	0	0	0	0
dummy MK 1 MK	3	1	0	12	5	1	<i>ALL!</i>
dummy CK BCP 492	1	0	0	2	1	0	0

Code: *(4)*      Lichtbeständigkeit des Farbstoffs im Atlas: - 100a D für D<sub>0</sub> = 1

Handwritten notes: *Ag-Kupfer*, *Wolfrat (95)*, *gemischt für Maxima Farbstoff (siehe Bioten Medien Langsam)*

Vergilbung Effekt	Glasprobe	FF-Papier
	5000L Eff.	6000L UV-P 20 Eff.
	11	0
	50	0
	3	0
		40
		4

Figure 12: CB-01-03-01 Index Card, Chemical Formula

Following the same system, this index card (Fig. 12), detailing the formula for a specific chemical additive, has the identifier, ‘CB-01-03-01-01’. This indicated that the card belongs to the *Documents & Reports* category, ‘CB-01’. Within *Documents & Reports* it belongs in the *Chemical Dictionaries* subgroup, thus extending the ID to ‘CB-01-03’. The remaining ‘01-01’ indicates that this would be the first item in the first box of the *Chemical Dictionaries* series.

### 5.1.2 Care & Handling Procedures

The proper care and handling of historically significant documents is of paramount importance. By establishing a basic set of handling and storage guidelines, one can be reasonably confident in the long-term maintenance of the collection. Failure to properly follow handling procedures could result in the damage of items in the collection.

**5.1.2.1 Storage** For nearly all media types there are several basic storage guidelines. The most important guideline is to maintain a cool, relatively dry environment. The relative humidity level in the environment should range between 35% to 60%. The temperature should range from 13 to 20 degrees Celsius, although it is best to keep the room as cool as practically possible. It is extremely important that the temperature of a climate controlled environment remain above the dew point to prevent the condensation of water directly on documents. The dew point calculator, available at [dpcalc.org](http://dpcalc.org), is a valuable tool to ensure storage conditions are within these guidelines. Second to this is to ensure



items are not placed in direct sunlight, or other intense lighting. Ultra-Violet radiation will quickly bleach away text or dyes, as well as potentially damaging the underlying material.

Special consideration must be given to the storage of photographs and film. Cellulose Acetate film must be kept in acid free folders and boxes to prevent ‘Vinegar Syndrome’, a positive feedback process wherein the cellulose acetate is hydrolyzed into acetic acid. A-D strips, a kind of PH strip, can be purchased from the Image Permanence Institute to gauge the degradation of the film. Polyester film does not suffer from this phenomenon, but can still be damaged from non-acid free storage mediums. If an asset is found to be acidic, it should be removed or separated from the rest of the collection so as to not contaminate the other assets. If an acidic asset is left with the rest of the collection, it would accelerate the acidification process of the other assets.

Due to the complex chemical nature of analog photography, it is possible to accidentally destroy or accelerate the decomposition of photographic prints and film without realizing it. Cellulose Acetate films are particularly vulnerable, suffering from so called ‘Vinegar Syndrome’.

**5.1.2.2 Handling** Just like improper storage, improper handling of collection items can accidentally damage them or otherwise accelerate their degradation. Cotton inspection gloves are typically used to avoid the transfer of oils from the fingers to an item while handling it. Additionally, items should not be stapled, hole-punched, taped, folded, or paper clipped. When possible original staples and paperclips should be carefully removed from items, as they can rust and stain the underlying paper.

### **5.1.3 Prioritization**

Due to the size of the collection it is necessary to prioritize which items should be organized, catalogued, and digitized before others. High priority assets, such as the lab notebooks and technical reports, have the most value to researchers as they contain the actual research results found by Ilford chemists, results which may be currently unknown to anyone besides the initial Ilford researchers. Low priority assets, such as the lab equipment, are of little importance to researchers interested in the Ciba collection, as much of it is simply standard chemical equipment. Most of the items in the *Documents & Reports* group would likely be considered high priority because this category contains the most information about research, product development, and operations of the facility. It is important to note that exact priorities will have to be established by the Ciba Association itself based on what goals it considers most important to achieve.

### **5.1.4 Organization**

The organizational structure needs to be straightforward, concise, and properly followed. Everything in the *Document & Reports* and *Photos & Prints* groups should be placed in acid free file folders when possible. The item identifier, assigned by the process discussed in section 5.1.1.3, would then be placed on the top of the file folder. Filing boxes, such as Banker boxes, should be used as a container to store all of the folders and assets. Excluding the labeling of file folders, the item identifiers and descriptions should be written on labels that are able to be attached to either the

surface of the item or the surface of a container in which the item will go into. For example, the filing boxes would have a label placed on the outside on one of its sides in which it can be easily seen when stored. If an asset does not fit within a file folder or a filing box, the asset should still be labeled with an identifier and be placed in the same storage as the filing boxes. The identifier written on all the labels should be legible.



Figure 13: Subcategory Example: Monthly Reports

A great deal of time should be committed to the organization of the Ciba collection. When organizing the collection, rather than beginning with an extremely high level of detail, it is beneficial to work in an iterative fashion. Organizing everything at the 'box' level, rather than individually from the start, ensures that the entire collection is catalogued. Figure 13 shows an example on how monthly reports would be categorized under a subcategory within the organizational schema. Once the entire collection is organized at the 'box' level, it is then possible to go back through the collection more thoroughly, assigning individual item identifiers and recording item descriptions. For example, initially it would be sufficient to simply put all the monthly reports in boxes in chronological order. Taking time to record information about each report, its content, and its connection to other documents would take a significant amount of time, time that would be better spent organizing other portions of the collection, even at a basic level. More detailed work in recording specific, in depth information about an item, should be revisited after the entire collection has been organized at this basic level.

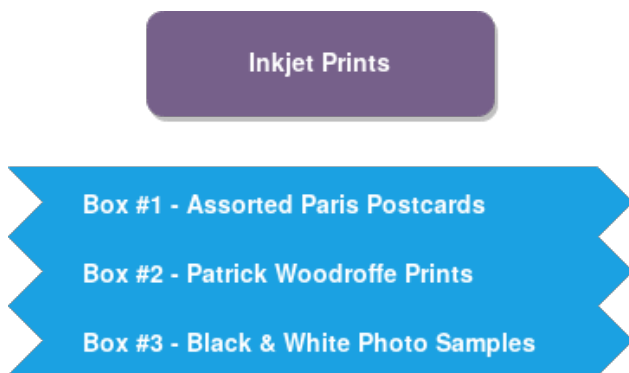


Figure 14: Subcategory Example: Inkjet Prints

Using the Inkjet Prints subcategory as an example, boxes would be filled with groups of similar items. Each box would have a brief account of the items it contains, as shown in figure 14. As mentioned previously, it would then be possible to come back and assign each item in the box its own identifier and record more information about it. Figure 15 shown below is an example of how a physical box would be identified and labeled.

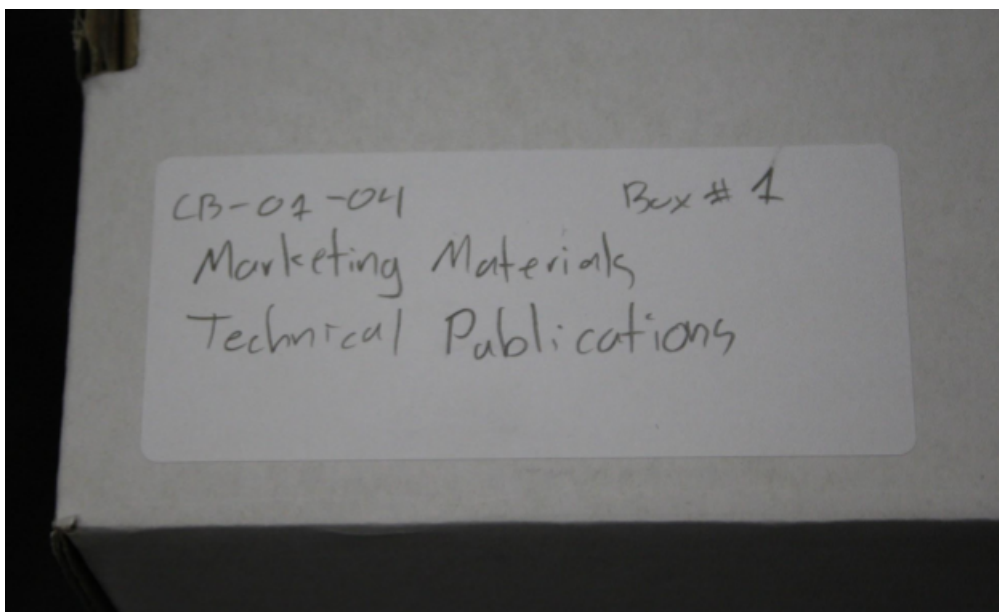


Figure 15: Box #1 in the 'CB-01-04' Group, Marketing Materials and Technical Publications

## 5.2 Publication

The easiest way for researchers to learn about the collection and to access the information within it is over the internet. An online database allows for anyone to easily search the collection for any information they may be interested in. Additionally an informative website with curated information on the history of Ciba and Cibachrome would appeal to photography enthusiasts and the general public as a whole.

### **5.2.1 Wikipedia Article**

The natural thing for a researcher to do when searching for information on a new topic is to use an internet search engine to look for information about it. The first result for a topic is generally a Wikipedia article, which can be a good source for broad information and further reading. There is already a Wikipedia article about Cibachrome (under Ilfochrome, a product name formerly used for Cibachrome) but the current scope of the article is limited. Adding information about the Ciba Association and Ciba collection to either that article or another would make it much easier for people to discover and eventually utilize the collection.

### **5.2.2 Informative Website**

Creation of an informative website is key to any attempt at publishing the Ciba collection and the knowledge it contains. To this end, either the existing Ciba Association website should be expanded to present more information about the collection or an auxiliary website created focusing primarily on Cibachrome, its history, and the Ciba collection.

**5.2.2.1 General Information** Such a website would house more in depth information on Cibachrome, its important role in photographic history, information about the Ciba collection and more. Specific to the last point, a brief summary of the kinds of chemical research performed at Ilford should be included. The goal of having this information is to allow people who may be interested in the Ciba collection and the technical information within it to discover it during their research. Ideally someone who is researching a topic, such as coating technologies, would be able to find the Ciba Association website without prior knowledge of Ilford, Cibachrome, etc. There are many services that make the process of creating a modern, sleek website easy, such as Wix, Weebly, or SquareSpace. Many website services also offer domain management for a monthly or yearly fee.

**5.2.2.2 Ciba Association** The Ciba Association website is currently lacking in information about the Ciba collection. Naturally, most of the people running the association are familiar with Cibachrome and Ciba. This can prove problematic when creating a website designed for the general public as they may not immediately understand some of the content or context of the information presented. Having people that are not already familiar with Ciba, the Cibachrome, or the Ciba Association review the website and provide feedback is extremely valuable in creating a front that is appealing to the general public. Engaging a wider audience also necessitates a wider range of language options. While Marly is a french speaking area, language options in either German or English would prove beneficial to increasing the number of people that would be able to effectively utilize the website.

**5.2.2.3 Database Access** The website should contain an interface for searching the database. The collection of comprehensive metadata is vital to the creating of a easily searchable database for researchers. Creating this is a rather technical endeavour and would be difficult for the association to implement alone. It would be valuable to reach out to institutions or libraries willing to host a digital collection on the behalf of the association. Alternatively, partnering with the computer science department of a university could result in the creation of a student project to achieve this.

### 5.2.3 Digital Archive & Databases

**5.2.3.1 Metadata** Metadata is information used to describe an object. Typically information about an object, such as its composition, motif, size, appearance, condition, format, or artist / author is recorded. Recording this information helps provide a better understanding of the object as a whole and its place within the collection. During the organization phase, as much metadata about each item being added to the archive should be collected. This information is essential and it will make it significantly easier for researchers and other individuals to access the information they are looking for. Fundamentally, the metadata for an object is what a search engine would sift through when attempting to find a specific item. For example, if a researcher is looking for information on light sensitive polymers, but no one ever recorded which notebooks included research on polymers, the search engine would not be able to find anything of value. Information about the content, composition, and media of an item is valuable. Time permitting, more complex information, such as the subject matter of reports and lab research, should be recorded as well. Although having in depth information about each item is ideal, the focus should be on good organization rather than creating extremely detailed descriptions. Creating detailed information for each asset would be a very time consuming task and could distract from the main focus of organizing the whole collection. Recording further in depth information about an object should be done after the preliminary organization is completed. Having at least a basic idea of all the items in the collection can be used later on to pinpoint the areas that deserve more in depth exploration.

**5.2.3.2 Digitization** Digitization is necessary to present the information in the collection online in place of allowing physical access to the collection. While digitization is necessary to present a complete reflection of a physical item, it is still possible to provide brief explanations or the metadata for items that have not yet, or cannot be digitized. This will allow the researchers and other groups that are using the digitization database to gain a broad understanding of the items in the collection and their context, even if there is no digitized version immediately available. A digitization stand would be the best option to digitize the paper documents and prints, but a stable frame and consistent backdrop can make it possible to use a consumer camera or even a cell phone camera to digitize these items. Slides and film require specialized equipment to properly digitize and should be done professionally. Digitization should only begin after some sort of organizational hierarchy has been implemented, otherwise trying to retroactively organize photos of documents would be extremely difficult.



Figure 16: An example of a lab notebook

**5.2.3.3 Data Formats** Different forms of media require different data formats and standards when digitized. For most consumer sized paper (A4, 8.5" x 11") a target resolution of 500 DPI is sufficient for digitization. Small format media, such as film slides require higher target resolutions, typically around 4000 DPI to retain a sufficient amount of detail. Images should be captured in TIFF or JPEG 2000 formats. Image file names should match the identifier code of the item it is associated with. If multiple image files belong to a single item an additional field can be added to the file name and iterated. Other types of media, such as film or audio have no generally agreed upon standards. In such cases any modern file type can be used. During the time of writing this report, these would be mp4 and mp3 for film and audio respectively.

**5.2.3.4 Software Options** Given the current resources of the Ciba Association and the scale of the collection, a complex software solution is unnecessary. A well maintained spreadsheet, or text document would be sufficient to maintain an organized collection. The creation of a fully featured online database would require some sort of software curation system, but this is likely outside of the scope of what is feasible for the association to accomplish. A partnership with another institution or university capable of supplying the skills and knowledge to create a comprehensive digital system would be the only realistic way of achieving such a goal. Figure 17 shown below is a brief example of a record that details the contents of boxes in a spreadsheet. This document would be filled out concurrently with the physical organization of the collection. Immediately after each item is labelled and placed in a box or its designated shelf a new entry should be created in the spreadsheet. This ensures the records are always up to date and accurately reflect the contents and organizational state of the collection as a whole.

	A	B	C	
1	Item ID	Box	Description	Metadata
2	<b>CB-01-01-01</b>	<b>1</b>	<b>Assorted Lab Notes</b>	<b>Box, Lab Notebooks, Kilchmann, Steinmetz, Field</b>
3	CB-01-01-01-01	1	Lab Notes Dr Field	Nº 000588
4	CB-01-01-01-02	1	Lab Notes Kilchmann	Nº 01035, Nr. 33, Pages 3301-3400
5	CB-01-01-01-03	1	Lab Notes Steinmetz	Nº 01202, Nr. 21, Pages 2101-2200
6	CB-01-01-01-04	1	Lab Notes Steinmetz	Nº 01405, Nr. 22, Pages 2201-2300
7				
8	<b>CB-01-01-02</b>	<b>2</b>	<b>Assorted Lab Notes</b>	<b>Box, Lab Notebooks</b>
9	CB-01-01-02-01	2	Lab Notes John Doe	Nº 000590
10	CB-01-01-02-02	2	Lab Notes Jane Doe	Nº 002245, Nr. 13
11	CB-01-01-02-03	2	Lab Notes Jane Doe	Nº 002252, Nr. 14
12	CB-01-01-02-04	2	Lab Notes Jane Doe	Nº 002260, Nr. 15
13	CB-01-01-02-05	2	Lab Notes John Smith	Nº 001245, Nr. 12, Pages 1201-1300
14				
15				
16				
17				

Figure 17: Example of a spreadsheet recording item details

(Note: this example does not reflect an actual box in the Ciba collection, it is a purely hypothetical mockup)

Each row represents either an individual item or a box of items in the collection. The box is listed just prior to its contents. In addition to each item's ID, a brief description is provided along with some metadata. For this example with lab notebooks, the metadata for a box consists of an overview of its contents along with the word 'Box' to make clear that it is a container, not an item. The metadata for lab notebooks consists of the global number (e.g., Nº 000588), a per-researcher number that increments per notebook (e.g., Nr. 33), and a page range, again per-researcher. It is important to note that some items do not contain each type of metadata because the physical notebook does not have that information. In this case, only the available metadata should be recorded with the rest omitted.

The spreadsheet example is for the Lab Notebooks subcategory. It is a sheet within a larger Documents & Reports file. A file should be made for each of the three major categories (Documents & Reports, Equipment, and Photos & Prints) with each subcategory then occurring as a sheet with its respective file as shown in figure 18.



Figure 18: Detail of the different sheets for each subcategory

Regardless of the system utilized, it is extremely important that all the recorded data is backed up. Multiple hard

copies and several soft copies of the organizational hierarchy and object descriptions should be created. It is this information that makes up the archive. Without this information the archive may as well not exist, as such it is necessary to ensure its longevity.

## **5.3 Outreach**

Reaching out to institutions, researchers, and the general public is an important aspect the Ciba Association must consider both during and after the organization process of the Ciba collection. Reaching out can help reduce the amount of archival or storage work the Ciba Association would do if they are able to successfully collaborate with interested institutions. The outreach effort is also important to increase the public awareness so that the public knows that the collection exists and is accessible.

### **5.3.1 Traveling Exhibition**

A traveling exhibition is an exhibition that goes to several different institutions displaying a collection. The institutions involved range from museums, libraries, or universities. Part of the Ciba collection, such as the equipment or photos and prints, could become a traveling exhibition. The logistics behind a traveling exhibit include the creation of a story for the display, how the collection will be displayed, stored, transported, and conserved. The most important aspect when making a traveling exhibition is finding an interested institution to receive the collection. Possible institutions could be the Musée suisse de l'appareil photographique in Vevey or the Hochschule der Künste Bern.

**5.3.1.1 Contents & Story** The most important consideration when designing a museum exhibition, and particularly ones that deal with historical content, is to tell a “story” with the content you are displaying that is compelling to the exhibition’s audience. It is fortunate then when considering a Cibachrome exhibit that an interesting story already exists: the history of color photography and the role Cibachrome played in it.

**5.3.1.2 Partnering with Institutions** Collaborating and reaching out to institutions would prove beneficial to the Ciba Association as it can help alleviate the amount of assets to archive and digitize within the collection. For this to occur, the institution would have to show an interest in some of the assets within the collection. One way to convince institutions on receiving part of the collection is to demonstrate that the collection preserves part of the history of photography and contains research documents that could be used today for modern applications.

### **5.3.2 Journals**

Once the Ciba collection is organized and accessible, the public should be made aware so that people can begin to view and access the collection. One way in which this can be accomplished is through a publication or advertisement within a journal or newspaper. The possible journals the Ciba Association can reach out to include the journal of the American Institute for Conservation of Historic and Artistic Works (AIC), the journal of the International Institute for Conservation of Historic and Artistic Works, and *Leonardo*. All of these journals covers topics about conservation and



artworks. The journal of AIC publishes peer-reviewed research papers and technical studies that relate to the fields of conservation and preservation of cultural and historical works (Journal of the American Institute for Conservation of Historic and Artistic Works [JAIC], n.d.). The International Institute for Conservation of Historic and Artistic Works serves as a forum in which professionals can communicate with each other about the preservation of cultural heritage (International Institute for Conservation of Historic and Artistic Works, n.d.). *Leonardo* is a press journal of the Massachusetts Institute of Technology (MIT). It is an international, peer-reviewed journal covering the use of science and technology in the arts and the influence the humanities and arts have had on science and technology (Leonardo, n.d.).

### **5.3.3 Conferences**

Conferences are opportunities to engage with the conservation and archiving communities. Conferences are typically hosted by conservation organizations, such as the AIC, with the goal of sharing knowledge between different groups and researchers. This would be beneficial for the Ciba Association as it helps them gain more public awareness on what assets are in their collection and can show how to access the collection. Increased public awareness could also lead to more interest in research within the collection due its large amount of original lab notebooks and other technical documents.

## **5.4 Long Term Objectives**

There are some objectives that, while valuable, are difficult for the Ciba Association to achieve in the short term either due to their limited resources or realistic time constraints. These are given here as long-term goals, they are not strictly essential to fulfilling the association's mission but are still worth considering and possibly pursuing at a future date.

### **5.4.1 Student Projects**

There is a great deal of potential for future student projects working with the Ciba Association or the Ciba collection. The most apparent project is the physical organization of the collection. This could be a task for a group of conservation students from the local area or the Hochschule der Künste Bern. The development of the Ciba Association website, Ciba collection website, and Ciba collection database are all good projects for a group of computer science students. This would provide valuable experience to students while simultaneously providing the association with the software needed to digitize and present the collection digitally. Additionally, the collection contains a lot of information on very specific topics, products, and research. Masters research into a specific topic, research application, or other portion of the collection would improve the overall quality and understanding of the Ciba collection. Similarly, history students could conduct research on the impact of the site in Marly and photography as a whole.

#### **5.4.2 Oral Histories**

Through interviews with former Ciba / Ilford employees, it became clear there was a great deal of historical information to be gathered from them. One method to preserve the history of the Marly site and the legacy of Ciba / Ilford would be to formally record a set of oral histories from former employees, residents, and others that were impacted by the activities of Ciba in Marly. This would provide a greater context for the work done at the site and its impact on Marly that cannot be found anywhere else. Such a project to collect and compile oral histories could also be a student project as described in the previous section.

#### **5.4.3 Distribution**

After initial organization and categorization of the assets in the Ciba collection, it is worthwhile to consider donating certain portions of the collection to interested institutions. This removes the burden on the association of caring for and storing the items and ensures they will be properly cared for through the foreseeable future. For example, the entire Photo & Prints group of items could be donated to a photography museum. Additionally, this would allow the association to focus more of its energy and resources to other aspects of its mission.

## **6 Conclusion**

There is substantial value contained in the Ciba collection, particularly in the technical reports on the chemical research performed at Ilford and the industrial recipes for Cibachrome products. This information is of interest both to chemical researchers, particularly those working with dye or coating technology, along with conservators and museum specialists. In order to allow these individuals to access the information in the collection, an organizational system must be created and the currently disorganized collection must be turned into a proper archive. The key steps to doing this are to establish an organization system and to develop a plan to share the assets publicly. To this latter end an electronic approach is best as it allows the broadest access with the least overhead. A well thought-out plan for a website, electronic archival database, and digitization procedure that takes into account both industry standards and the needs of the stakeholder group will allow such an approach to be successfully executed and for the wealth of knowledge the Ciba collection and the Ciba Association holds to be shared with the world.

## References

Amazon. (n.d.). Amazon S3 Frequently Asked Questions. Retrieved from <http://aws.amazon.com/s3/faqs>

Association Cibachrome. (2014). STATUS [Constitution]. Retrieved from <http://www.cibachrome.photo/>

Bingham, A. (2010). The digitization of newspaper archives: Opportunities and challenges for historians. *Twentieth Century British History*, 21(2), 225-231. doi:10.1093/tcbh/hwq007

Burkart, A., Campbell, D., & Lambert, K. (2002). Dickens House Museum Photography Collection. Worcester Polytechnic Institute

Carolyn Doi (2015) Local Music Collections: Strategies for Digital Access, Presentation, and Preservation—A Case Study, *New Review of Academic Librarianship*, 21:2, 256-263, DOI: 10.1080/13614533.2015.1022663

Christy, M., Gupta, A., Grumbach, E., Mandell, L., Furuta, R., & Gutierrez-Osuna, R. (2018). Mass digitization of early modern texts with optical character recognition. *Journal on Computing and Cultural Heritage (JOCCH)*, 11(1), 1-25. 10.1145/3075645

Collins, F., & Arredondo, J. (2009). Digitizing Thoreau: Thoreau collection preservation project. Worcester Polytechnic Institute.

Fleckner, J. (1990). Archives and Museums. *The Midwestern Archivist*, 15(2), 67-75. Retrieved from <http://www.jstor.org.ezproxy.w>

Hofmann, R. (2018). A Concept for an Industrial Museum and Archive

Library of Congress. (n.d.). Bibliographic Framework Initiative. Retrieved April 05, 2018, from <http://www.loc.gov/bibframe/>

Melton, M. (1996). Preserving Love's Labors in the Museum Archives. *Art Documentation: Journal of the Art Libraries Society of North America*, 15(1), 7-9. Retrieved from <http://www.jstor.org/stable/27948811>

Michael Seadle, (1998) "Building on the Cornell□Yale Model: Digitizing the Radicalism Collection at Michigan State University", *Library Hi Tech*, Vol. 16 Issue: 2, pp.19-36, <https://doi.org/10.1108/07378839810303938>

Network Development, & MARC Standards Office. (n.d.). MARC STANDARDS. Retrieved April 05, 2018, from <https://www.loc.gov/marc/>

Society of American Archivists. (2013). *Describing Archives: A Content Standard*. (2nd). Chicago: Society of American Archivists

Tennant, R. (2002, October 15). MARC Must Die. Retrieved April 05, 2018, from <https://lj.libraryjournal.com/2002/10/ljarchives/marc-must-die/>

# Appendices

## A List of Acronyms

### Organizations:

<i>ASA</i>	Association of Swiss Archivists
<i>ECCO</i>	European Confederation of Conservator-Restorers' Organisations
<i>MIC</i>	Marly Innovation Center
<i>PUM</i>	Phillips University of Marburg
<i>SA</i>	Stadtmuseum Aarau
<i>SAA</i>	Society of American Archivists
<i>UoF</i>	University of Fribourg

### Misc:

<i>OCR</i>	Optical Character Recognition
<i>DACS</i>	Describing Archives: A Content Standard
<i>MARC</i>	Machine-Readable Cataloging

## B List of People

Name	Description	Email (if available)
Georges Baechler	Head of the technical service and customer service departments of Ciba	georges.baechler@bluewin.ch
Jean-Marc Boéchat	Head of the Microscopy Lab at Ciba and a Professor at the University of Fribourg	Jean-Marc.Boechat@hefr.ch
Kristina Blaschke	Curator at the Sprengel Museum in Hanover, Germany	Kristina.Blaschke-Walther@hannover-stadt.de
Alice Carver-Kubik	Research scientist working in the Image Permanence Institute in Rochester, New York	ackpph@rit.edu
Sebastian Dobrusskin	Specialist in paper conservation and is the vice president of the European Confederation of Conservator-Restorers' Organisations	sebastian.dobrusskin@hkb.bfh.ch

Name	Description	Email (if available)
Wendy Ericsson	A photographer that previously worked at Ilford working in the technical,service department in the United States	wendy@wazobirdstudio.com
Sonja Fessel	Conservator working at the Philipps-Universität Marburg	fessel@fotomarburg.de
Jean-Noël Gex	Chemical researcher at Ciba and president of the Ciba Association	jeannoel.gex@gmail.com
Corinne Goumaz	Secretary of the Ciba Association	cocogoumaz@gmail.com
Rudolf Gschwind	Board member of Gubler Laboratory	rudolf.gschwind@unibas.ch
Heino Heimann	Photographic artist that works with Cibachrome	info@heinoheimann.de
Rita Hofmann	Former chemical researcher of Ilford and project sponsor	rita.hofmann@hkb.bfh.ch
Catherine Métrailler	Member of the Ciba Association	-
Jean-Marc Métrailler	Manager of the Marly Innovation Center	jm.metrailler@m-innovationcenter.org
Jean-Luc Monteleone	Historian and community Secretary of Marly	luc.monteleone@marly.ch
Daniela Nowakowski	Project manager at the Stadtmuseum Aarau	daniela.nowakowski@aarau.ch
Rod Parsons	Former Ilford employee that was a technical service manager responsible,for the United States technical support	rodpar45@gmail.com
Sylvie Pénichon	Senior conservator and head of Photography Conservation at the Art,Institute of Chicago	spenichon@artic.edu
Werner Rutsch	Chemist and the head of the additives research for Ciba	werner_rutsch@bluewin.ch
Brian Sammartino	Former Ilford employee that worked in the United States sales division	-
Barbara Spalinger	Specialist in photo and paper conservation and head of conservation in the Stadtmuseum Aarau	barbara.spalinger@hkb.bfh.ch
Rolf Steiger	Former Ilford Chemist/researcher. He worked on the creation of Cibachrome	rolf_steiger@bluewin.ch

Name	Description	Email (if available)
René Sudan	Custodian of the Cibachrome House in Marly, Switzerland	rene.sudan@gmx.ch
Dieter Wyrsh	Former research director of Ilford	dieter@dwyrsh.ch

## C Collection Pictures & Archiving Example

### C.1 Storage



Figure 19: Assorted lab notebooks are placed in a filing box. A single filing box can hold about 20 notebooks. It is possible to label notebooks individually or in groups.



Figure 20: Various marketing brochures, magazines, and books are placed in a filing box. Groups of similar items are given individual IDs on pieces of paper visible when the box is open.





Figure 21: A set of inkjet prints in placed in a photo box, given an individual ID and placed in a filing box. Seen on the label is the artist’s name and characteristics of the item itself, such as ‘color’.

## C.2 Naming

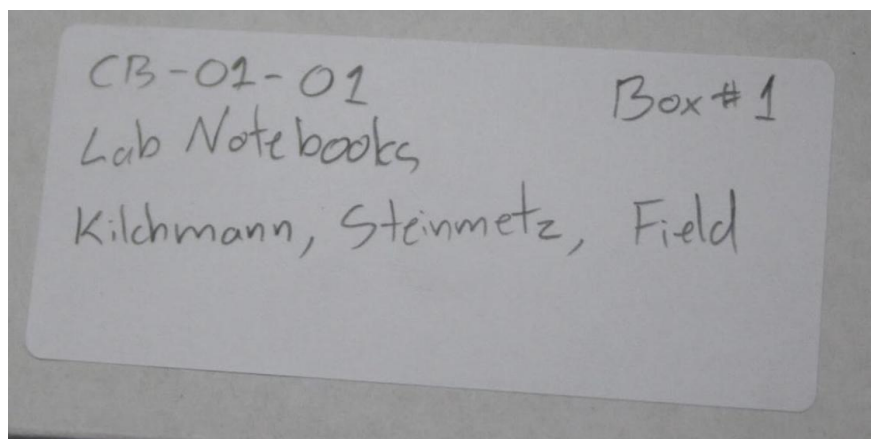


Figure 22: Box labels indicate the group the box belongs to, ‘CB-01-01’ as well as its box number. Additional information about the contents of the box is recorded.

### C.3 Labeling

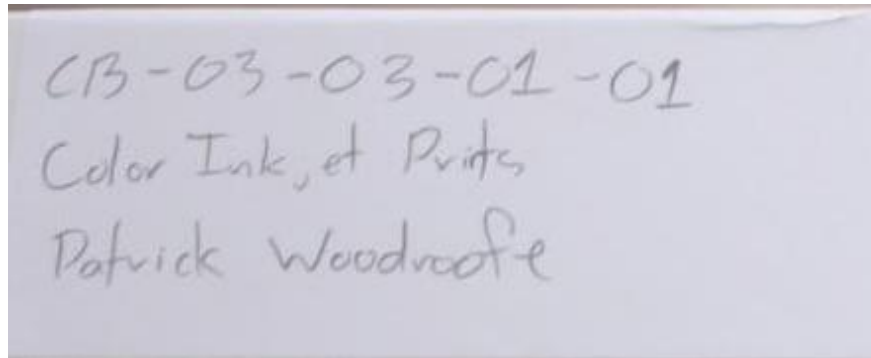


Figure 23: This item label contains the entire item ID, indicating its position in the organization hierarchy. Also printed on the label is information about the item, in this case the artist and the medium.

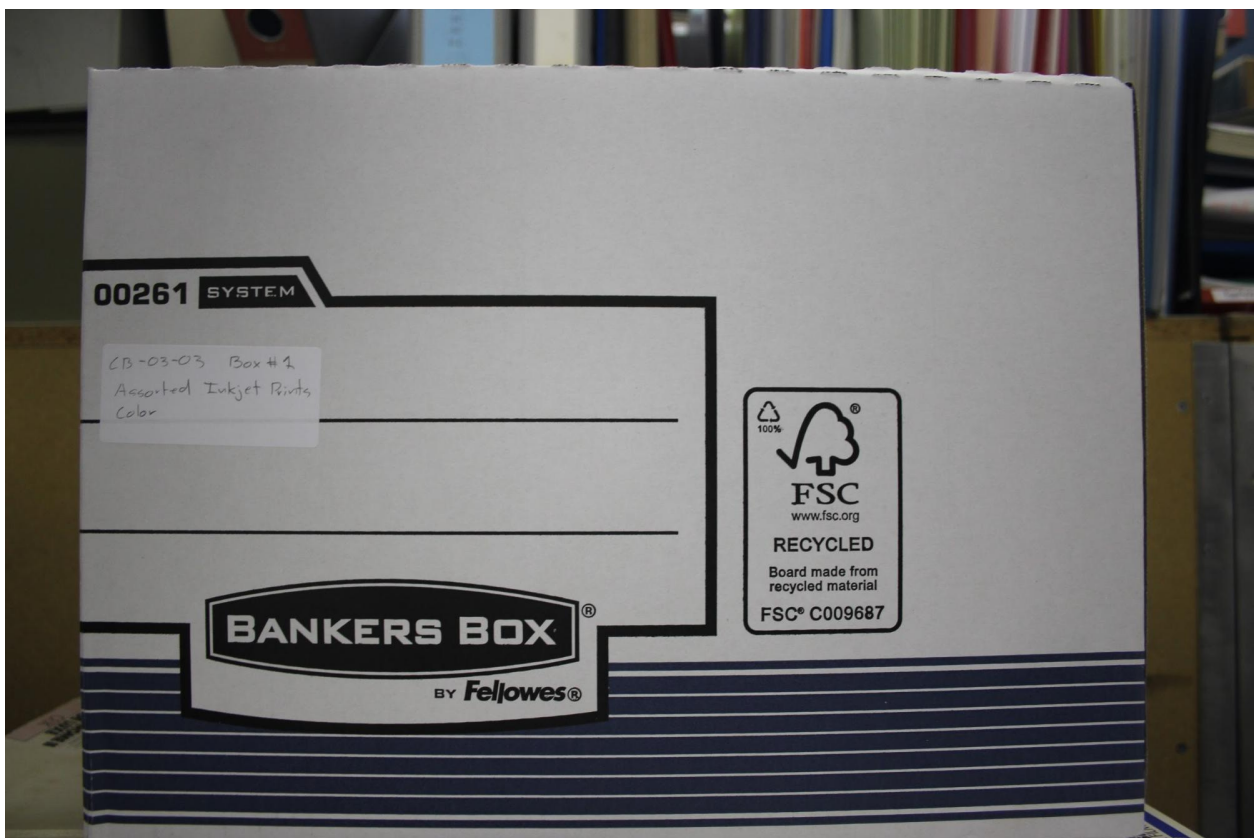


Figure 24: Labels are placed on boxes where they are easily visible, on the sides and front. It should be visible when the boxes are stacked or stored in shelves.

### C.4 Collection Examples

These are general examples of items contained within the collection as well as photos of the collection room itself.



Figure 25: Overview of the collection room



Figure 26: Overview of the collection room

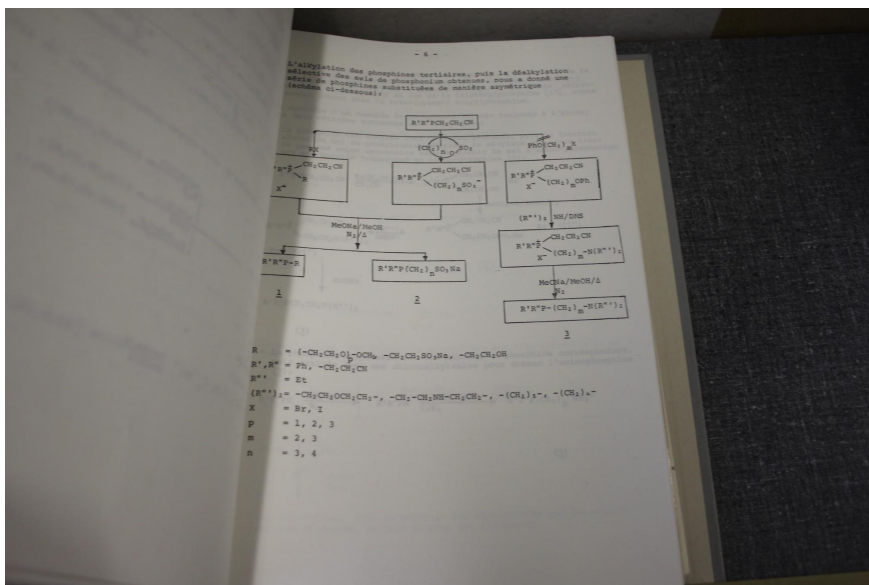


Figure 27: Example of a technical report





Figure 28: Example of a binder containing technical reports



Figure 29: Crate of Cibachrome prints

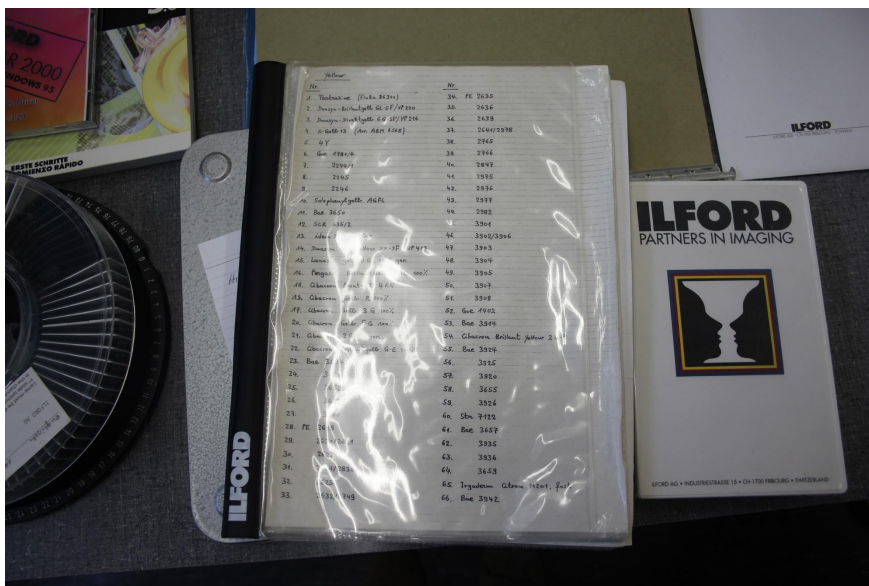


Figure 30: Chemical dictionary

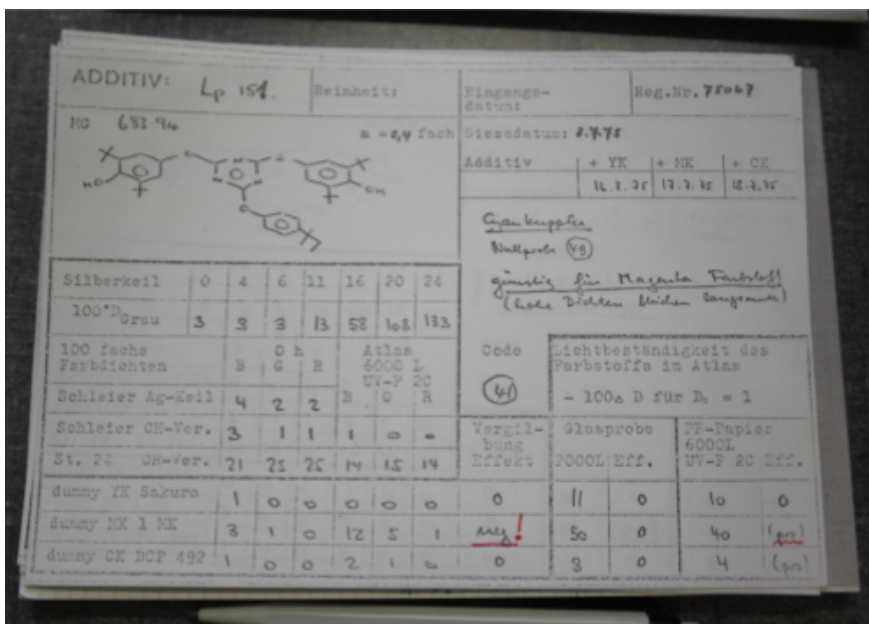


Figure 31: Index card describing a chemical

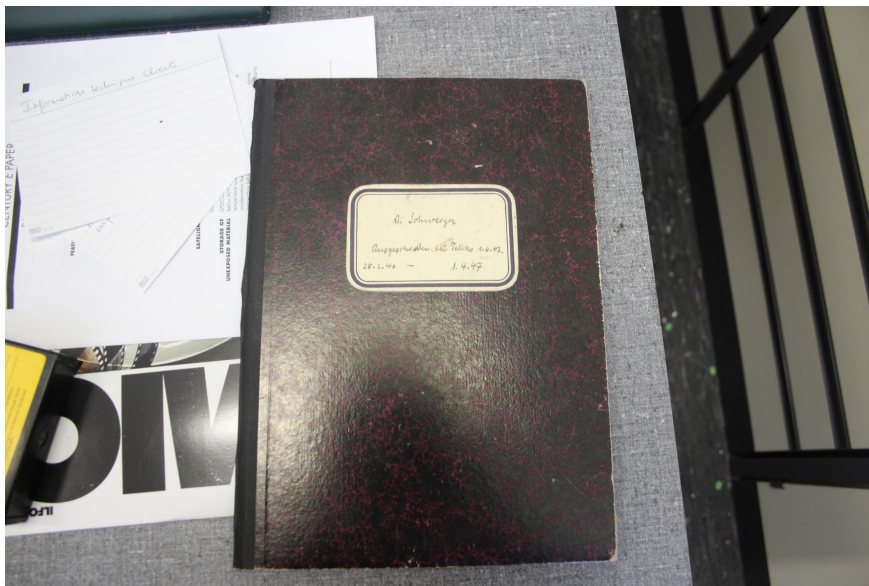


Figure 32: Example of an older lab notebook

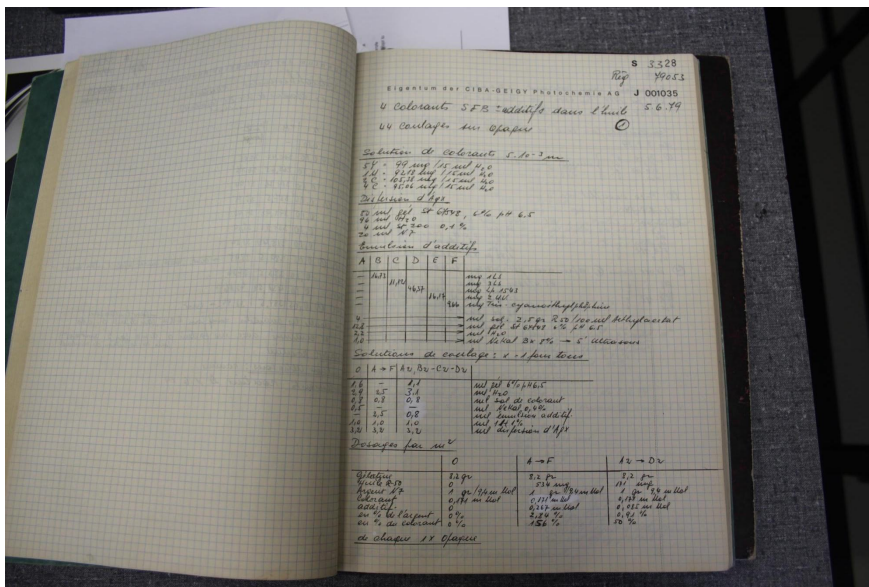


Figure 33: Example of a lab notebook



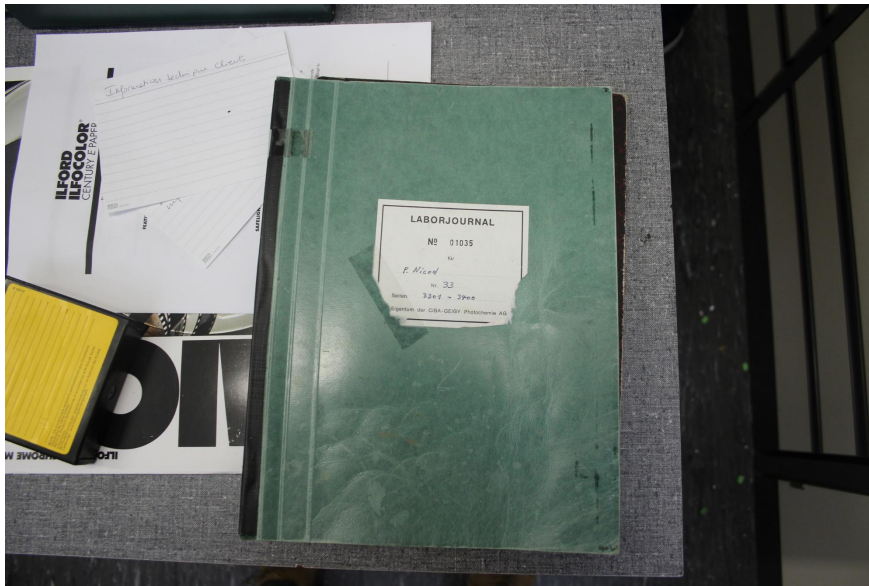


Figure 34: Example of a lab notebook

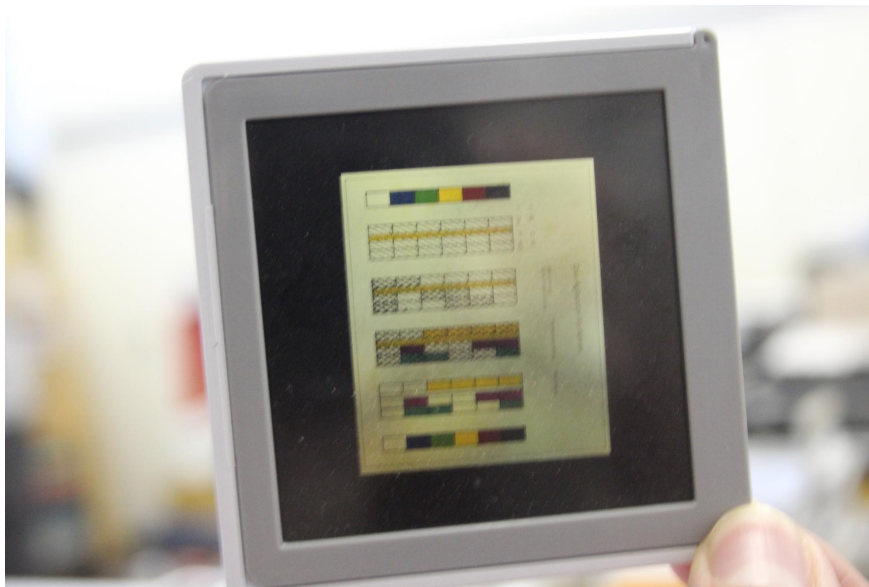


Figure 35: Example of a slide



Figure 36: Example of a zip drive



Figure 37: Example of a zip drive



**D Cibachrome Examples**



Figure 38: Cibachrome print, note the brilliant blues and reds



Figure 39: Cibachrome print



**E Group photo with Rita Hofmann and Jean-Marc Métrailler**

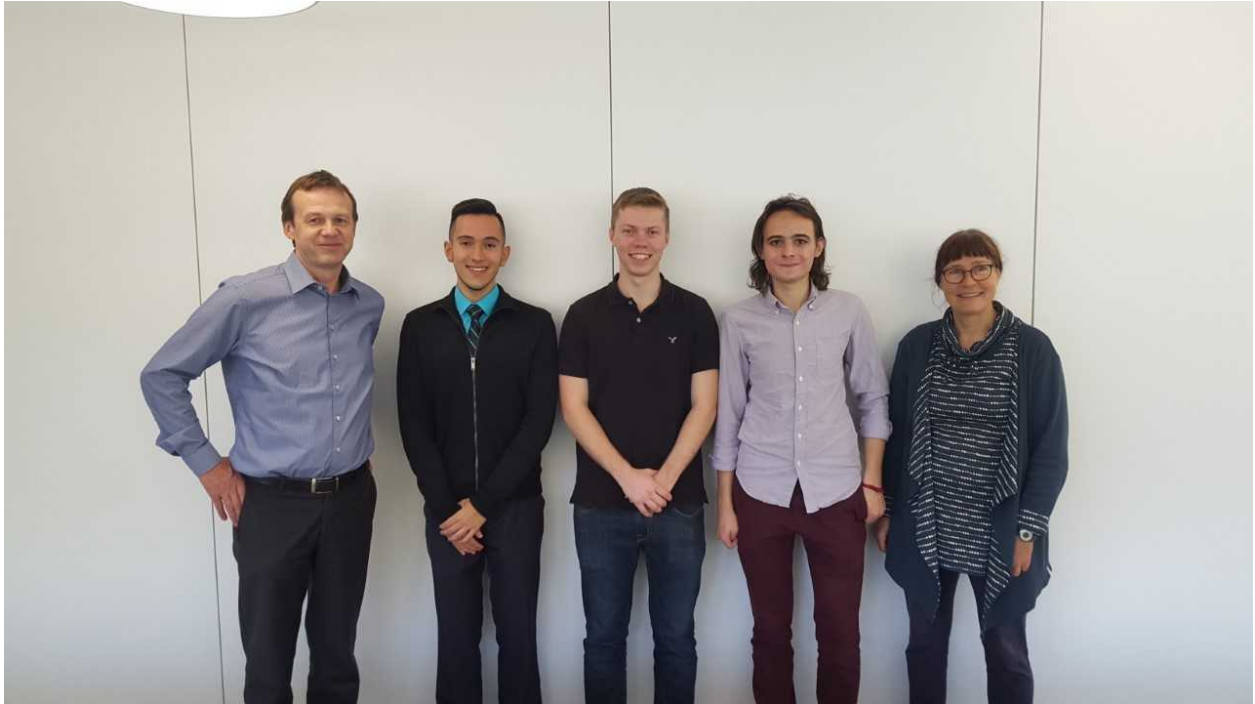


Figure 40: From left to right: Jean-Marc, Randy, Robaire, Phillip, Rita

## F Corporate History of Ilford

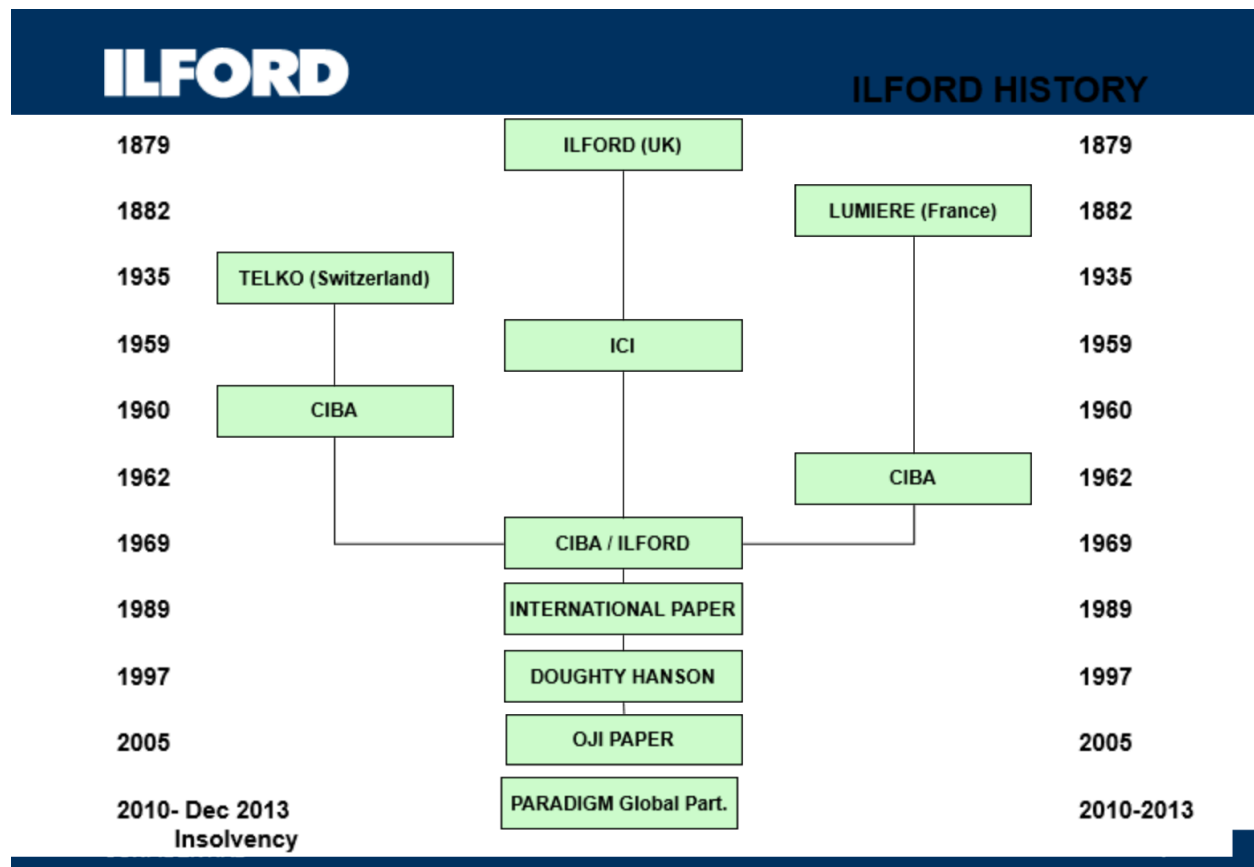


Figure 41: Chart describing the history of ownership for Ilford

## G Interview Notes

Disclaimer: The interview documentation was an attempt to create transcripts of each interview but unfortunately due to the pace of the interviewee's speaking, the accent of the interviewee, and the limited typing speed of the student recording the information, these documents became incomplete, not recording everything that was said in each interview. Also certain words or phrases may have been confused with others. Additionally due to the pace of the interviews, the documentation was written more informally and without any general structure. They should not be taken as literal transcripts.

### G.1 Georges Baechler 8-30-18

- Description: Responsible for technical service, clients
- Head of the technical and customer service. He has been here for 42 years. He started through the old factory doing cutting, manufacturing, quality assurance for sewing and then came back.
- He worked for Ciba in 1964. His intention was to work for a few months here, save money, and leave but he ended up finding his wife here and stayed to work. (He was previously a sailor and wanted to travel and work

as a sailor.) He had his education nearby and lived his whole life here basically.

- Started in Fribourg in sewing company and then came back to build technical customer support.
- He doesn't think it is sad that now it is digital photography instead of analog. He owns a digital camera. He enjoys the simplicity of it. He can tell when a photo/image is digital. Tech is advancing and we must follow it.
- Ilford was the first to believe in digital. DPI allows you to make a print out of a file. Also made color photograph/copy in 7 minutes but they were not big enough in tech for worldwide use.
- The photographic business was not easy to manage from a marketing aspect.
- Analog photography went to digital. Ilford was small compared to others. Used to have an American owner involved with paper. He just wanted the image of Ilford to use the name on paper. Happy when IP (International Paper) was buying Ilford but still they did not understand. He was handling tech service. IP wanted to work with graphical film but now were using computers but they still wanted to use graphical film as they thought there was a market for it. It was a mess as it did not really work out (takeover in 80s -90s) After, they understood the marketing approach so they go back to photography. Cibachrome was great they had their own machines, paper and product.
- They wanted a larger view with more products. IP made paper and wanted large volumes from Ilford but their specialization was to make special products not normal paper but they still went through with this. Thanks to Ciba, they received a lot of knowledge to perform with more technical people. They had a feeling that sometime it would end.
- MIC is a very satisfactory situation. It is very positive. Ciba was a very big company. Big pity if they went away completely like in ruins. Rather than let it die, it is good to give it life in other ways. They could have done it better in Ilford but the market changed rapidly.
- There is an immense value to preserve the history here to Marly. Cibachrome is one product that will remain forever and will not fade. Archives in Germany have made Ilfochrome copies of original paintings to ensure the archives will last for the years to come.
- 300 years ahead, you see an old computer but what do you know is in there. Same situation but you find a sealed box with pictures and you can understand it. Technology is wonderful but to migrate everything you will lose 50% of the knowledge with each migration. Best to maintain the history because it is a big part of the history of the company. Telko did black and white pictures. They worked in Fribourg for 20 years until Ciba bought them.
- Usually 800 people working on the site that lived in Marly.
- The identity of Marly was made through the site.
- The first intention is to know that Ciba was here in Marly.

- Marly is made up of mostly farms and people got scared. Farmers scared that industries would takeover but it ended up being beneficial for Marly. The fear went away rapidly. There were jobs for a lot of people. In those times, Ciba was generous because they had good pay. They had social jobs for people without experience or expertise. It also sponsored events within the town. It took a few years to become fully integrated into the town of Marly.
- Some people would be interested in the history of what was going on here because a lot of people were shocked of the shutdown even though people could feel it coming. Maybe in a few years, the need for these memories will come back within the town.
- There is always an interest in knowing the background/reasons behind the actions done here such as the deconstruction of the big metal towers.
- Main focus should be on Cibachrome. It was invented in Basel by the chemist who made the dyes and then brought it to Marly. Ciba had various spinoffs of photograph related things like silver bleach dye printing. Found a way to connect Cibachrome to digital systems. The complexity of the chemical processes was one of the reasons why it was harder to reach markets. To reduce the chemical process for the paper, it would be a breakthrough but it never happened. Cibachrome is the milestone of what was going on here. Inkjet papers did not have a breakthrough either.
- Research and development was a very strong department with good people. They had some small breakthroughs but digital imaging came very fast.
- There was a rolande de faux lab in Paris. Many photographers went to Paris to have a few prints made by him (Cibachrome prints). He never owned a digital camera and is now retired. Called the master of light because he did shading and enlargements and such. He really knew how to use the product.
- Best way to publicize the collection is to use a website for young people. The difficulty of museum is to have everything in a comprehensive way because everything is quite complicated. If people can understand how it is made, they may be able to master it. You need to understand and master layers going at a certain speed and not sticking together and looking at other components such as viscosity, velocity, separation and such. It is still a high-level tech.
- Nano tech you figure it out and coat paper with it. Cibachrome had to have several coatings and they could not touch and needed to be perfect.
- Could be worthwhile to have a physical representation to have something that people could understand it better.
- Books would not really work. He stated something along the lines of, "Only geeks have books then they don't even read it."
- The product was very complicated to work with. You needed the know how to work it and then you would get really amazing pieces.

- In inkjet, they had excellent products and they made an entire package with chemistry, paper, and machine to make it. Inkjet needs to have all the paper and ink to match with the same printers with certain settings. To work with high level paper, it is a longer process.
- Inkjet products was not sellable because it was too expensive. Mastering the tech was not the real problem.
- Reasons to close: not making correct decisions in certain moments, losing so much of our confidence in our own product that they could not sell their product so they thought that increasing the volume would help somehow. This niche product is still high quality but finally closed selling market because Cibachrome is disappearing. Less need for printers. It was probably destiny that they closed. They could have maintained it for a little while but the market was changing quite fast.

## **G.2 Jean-Marc Boéchat 8-28-18**

- Description: Representative of community counsel, professor at the Applied University Fribourg
- Involved with Ciba research department with polymers and different chemicals.
- While at Ciba, he conducted an analysis of pigments and other processes. The structure and shape of molecules is extremely important in the final color properties of pigments.
- “It did have a very strong impact of shaping today’s town.” Referring to Ciba’s impact on Marly.
- First brand of photochemie was to expand. Very passionate with photography so they bought a company called Telko that invented the Cibachrome type system.
- To expand it, he went there and expanded. They bought more land to have space.
- Ciba bought Ilford and Lumiere.
- Diffusion in the ‘70s. Planning to get a whole division in Marly. There was a problem because they thought of bringing water. The water here was brought from the power supply which was not a lot.
- The land bought was between the two lands. Bought land from former mayor. (They had political connections). It shaped a lot of the system of Marly.
- About 1000 people working in the area.
- Bought construction land to put people to live there. If you have work there, you should have your family there. Some high rise buildings made for families. This changed the look of Marly.
- The population increased from 2,000 to like 6,000 in about 10 years. In 1998, people were more dispersed, the population decreased.
- Ciba was made up of 300 people. Ilford stayed in Marly.

- In the '90s, Ciba sold Ilford to investors. They thought about renting the land, then Ciba- Geigy agreed to get ownership of site. They would pay for operational cost for 5-6 years.
- It is important that it changes to become more public (referring to the land)
- Bought by Fribourg to make into residential area?
- Ciba had massive impact even to this day.
- Worried when Ilford went “belly up”. Cost millions to keep it working.
- Walls put on a metallic structure was poor choice of design but that was how it was built. One problem the buildings had is that they would burn 50,000 liters of oil to warm up the buildings and it would still get cold. The 1960s industrial construction of these buildings had poor building design/choices.
- He worked here for 13 years until Ciba closed the site. The site still lives and is expanding.
- Marly was always on the wrong side of the numbers (debt). It had a lot of people but not a lot of companies. The site was able to offer more jobs to the people.
- Ciba at that time was very private like IBM in the states. Among the people working here, there was also a mayor of the town so it had good connections.
- It also created a need to have a chemistry department in the university. They had a very good department of industrial chemistry because of this. School law practice was located here and 10-12 people working in the lab were getting a better education.
- In the end, there were about 80 people with very high education and would not hire people with little/less education. People were brought from all over the world. Boéchat
- got here and only met 2-3 Swiss people. Lab people and workers were mostly local people.
- The work to keep everything working: Plumbing companies would work all year long to keep everything working. Woodwork, paint, electricians, informaticians, and other companies not associated with Geigy were also involved.
- Boéchat was responsible for electron microscopy which is very precise.
- 3D printing was being invented at the time. They developed a polymer for contact lenses and pigments.
- Research department had about 1,200 people just doing research. A good synthetic scientist would discover about 10-15 molecules in their entire lifetime and only 2-3 good synthetic products would come out of those discoveries.
- The research department was demolished with the Navardis diffusion.



- Another person took over and decided that it would be a good move to remove the research department. He did not go to Basel because he was not really wanted/appreciated there.
- After 2 years in Basel, there was only 20 people left.
- Merger happened in 1995 or 1996 (Novartis merger). July 1996, Boéchat
- heard about the closing while on vacation.
- At that time, they had a meeting with the union (20 people in meeting). Talked about how they would not close.
- During closure, could not broadcast, could not do much against it. A lot of change so Boéchat said he would go anywhere except Basel. Nice people were there but they had a totally different mentality. The people of Basel saw the people working in Marly as being paid a lot of money to do nothing.
- The site only had to pay taxes on buildings and nothing else.
- Ciba-Geigy located in Basel at the time.
- Was a dent in the finances but not a catastrophe.
- Boéchat teaches material science class and worked in North Carolina.
- We must realize what Cibachrome really meant.
- Color photos would not stay in color. Cibachrome process worked backwards trying to keep the colors. It also lasts a long time in light and has great archival properties. That is why NASA and other official companies used Cibachrome. "Cibachrome is almost indestructible."
- Ciba knew how to build lightfast pigments.
- Destroyed the pigment until what was left was what they wanted. (positive photograph?)
- This is why Cibachrome had such high color and vibrant colors. Did not have money to produce it.
- Digital turn was timed well here.
- Before you think of printing picture, you think of frame, background, position because it was expensive to print back when printing a photograph was a new concept. Nowadays no one really cares because you can take so many pictures.
- Before could not fit more than four people in frame for movies.
- He did microtechnics and metallurgy. Worked with scanning and transmission microscopes. Worked with pigments and additives.
- Professor in Technical University of Fribourg.

- Developing light photo resistance and needed to check the results, investigating pigments.
- Pigments are organic crystals. Depending on the size and shape of them. Life fastness also depends on size and quality of color. Also help produced packing documents and patent infringement discussion.
- He got to work with people in a lot of different departments.
- In September 1986, there was a big seminar in Basel for Ciba Geigy research people. He says it was very interesting. They talked a lot about organic chemistry. Seminar in Swiss German even though people came from around the world.
- There was a huge fire near Ciba plant which polluted the rain from miles and miles away affecting Ciba: socially, economically, and environmentally. Trying to get all ideas to work during the 1990s.
- 1996 someone came to teach how to manage people and attitude.
- Could not say bad things about the company. You had to change your mentality which was one of the reasons he wanted to get out.
- Scientists had pretty much everything they needed for their job. Looking for another job was difficult and that was one way they hooked you.
- Loyalty was appreciated but then people were leashed and taken advantage of.
- His Advice for us: Try to go to a big company for education and benefits but don't stay there.
- A lot of competition in some places. Not a lot of competition in the Marly. Main way to work here was through collaboration (here refers to on the Ilford site).
- It is better to be collaborative than competitive because sometimes it can be violent.
- For example in Carolina, university and industry working together was helpful. Some ideas would be pulled out to make a profit.
- 6-7 different people that were working spoke different languages. Could only speak English or Swiss German. Speaking French was allowed. There were a lot of Swiss Germans. Could only learn it through talking to people. German could be learned from the University but it was useless except in Germany.
- Own language developed here with French, Swiss German, Italian, and English. Sentences used words from several different languages.
- It was hard for him to get used to that mentality of only using one language in all of the states when he visited the U.S.
- The evolution is very prustic.

- Feelings towards the current attempt to bring back in MIC: It was a relief because Ilford was never profitable. Many people in Ciba-Geigy research from Ilford went to Ciba-Geigy. Connection was between people. There was fight between former Ilford employees and the new ones in Ciba.
- He is happy about the current state of the MIC and is happy that it did not become another industrial ruin.
- In 1991, employees were mad when Ilford was sold to investors. The relationship between the companies was broken.
- The dismissal of Nivardis was a big shock.
- '94 or '95 said that they would build a restaurant in barracks area. Never sure how long this place would last. Said it would take 20 million Francs. He said to wait and give it time.
- When diffusion announced: (Imagine someone working 25 years here) You were given two choices: one go to Basel and keep working or get paid 250000 to leave. He understood this but not everyone did.
- Ilford was fluctuating a lot after. The director here only had to go to Basel and work a bit to get money from investors/people to make machines work. Ilford has always been on the verge of collapse so making it a company on its own was a bad idea.
- Needed to find 10 million francs to save Ilford in summer of 2013-14. Plan to sell unused area for housing. He said that that was the problem. To change from industrial to housing is a very slow process. It was best not to put 8,000 people in Marly just to save 2,000 jobs. There was simply no time. Money was on the table which saved them for a few more years but it was still bad. They gave people the power to design the place. Better to start over and have a new company.
- They had no choice. 3000 square feet of land was to be changed to housing. The whole area is about 16% of constructible area of Marly. They need to do it right if they were going to change to housing. Maybe it would be best just to give it back to Marly for them to decide how to handle it.
- There was a break in/trespassing during winter through a chimney and the people breaking in were stuck on the roof. The security of the site decided to give those people coffee because it was cold. This demonstrated the start of the site becoming less strict about security.
- He wants to focus on the inventions that came out of the Marly site. He cares about the culture and history of the facility.
- He would like a final copy of our report.
- He is responsible for land planning, construction, and land and energy transport/environment in community.
- Almost of all Fribourg was agricultural.

### G.3 Kristina Blaschke 9/21/18

- Description: Curator at the Sprengel Museum in Hanover, GE.
- The museum has contemporary art of the twentieth century.
- They are using Museum plus as software to see all the positions of the storage and things like that.
- When they get new works of art, they need to do a technical report and find out the material of the work in order to get an idea of how it will behave with aging. The museum will get an inventory number which is really important to find everything. They put it in a book and database. The book is there to make it easier. For the identifier/number, they first have the year and then the sequential number after that which is divided by a comma. They also have abbreviations in between to see what art belongs to who. Her job is to put in all the data about where it comes from, insurance, things like that.
- They also have written documents and certificates of the artists. Some artists have restrictive ideas of how the art should be displayed. All this information should be in the database. It is important to know about databases as it makes it all easier.
- The space is really expensive to climatize everything so written documents are separated.
- She has evidence on how lighting should be for like Cibachrome. They have dated guidelines to follow. The guidelines were written from research and data.
- They need to know if you need to have lighting, security, do you have elevators, how many pages, how well everything is documented and the registry is checking if everything is ok or not. Every single department has to give a statement to say its ok to have. The curator also decides if it is ok to have as an exhibit.
- They loan stuff from other museums. For a gallery, restrictions are not that high. They also have private lenders.
- Curator decides which artistic content to show (that is not her job). The lenders will have a loan contract that says all the requirements/restrictions they need to follow in order to display/store it.
- All the museums are using Museum Plus.
- The database is used internally but they are trying to share some of their collection. In the future they will probably have more of their collection online. It is a lot of work to have the public database and they are quite busy.
- In Berlin, there is a study of museology which they do very well to organize collections and things.
- You can make appointments to see the archives and the works. You need to have a justified reason to look at the archive it is not just anyone. They also have a special reading room to see the works. It is not often that people request to see the archive.

#### G.4 Alice Carver-Kubik 9/27/18

- Description: She is a research scientist at the Image Permanence Institute in Rochester, New York. She studied her masters in photographic conservation and collections management. She researches and writes about photographic processes. She works on developing Graphics Atlas, a sophisticated resource that presents a unique, object-based approach for the identification and characterization of prints and photographs.
- IPI is an academic research center that preserves the collections of museums, archives, and libraries.
- IPI specializes in cultural heritage with printed media. The institute has been around for almost 35 years by 2020. Started out independent from manufacturers to test image stability and later on they started researching more into those types of topics. From that research they have published papers. They have gained a better understanding of storage environment for optimal stability. Looking at movement of the work with the temperature outside and inside. What does the collection experience with changes of temperature and humidity? (not much). They also have a consultation practice. Institutions ask them to come to look at their hvac systems in order for them to see if their environment is stable for their collection.
- They were just awarded a grant for the disaster management of inkjet (like flooding) investigating whether they can freeze inkjets or dry freeze them without damaging it.
- She wrote much of the info on Graphics Atlas. She knows a lot about photographs. She has workshops.
- She wrote the Cibachrome process within the dye process. She did her best to put the most amount of info and list out all the various products and materials. They really care about the material to know how to best care for them. You need to differentiate Cibachrome and chromogenic which you can freeze.
- Her research came from a book about Cibachrome which was made for customers. She also researched technical reports as well as read the book Sylvie Pénichon made.
- Those interested in the technical reports are probably not a whole lot of people. They can see the history of photography with the info in the collection. If a company goes under or something then all the info gets lost because they want to keep their formulas and info secrets while in production. Platano company was the inventor of platinum print or something similar. People today don't know how to make them in room temperature because the company went under and they still do not know how it was made.
- For her, the info (the technical reports/manufacturing recipes) is a gold mine to have.
- IPI's resources: As tech change, resource change too. Early days, they had publication like about chromogenic and they are now out of date/not published anymore. Now most of their resources come from the web and Graphics Atlas. (Digital print preservation order)
- Eclaim notebook is a subscription which IPI pays for which people can easily access. It takes the guesswork out and helps them understand how the collection is impacted by climate, etc. IPI has print and web resources,

word of mouth, conferences, some advertisement to get the word out and get more info. People know they exist. Ranked #5 out of all the international institutes that work in a similar field.

- First step is to create finding aids. (What is in this box, here is a map of the U.S.) do a base level finding aid to find out what material is there. It is possible that institutions could create fellowships from this collection (like ones in Canada and other permanence institutions). Difficult to access if you do not know what is there.
- It is also necessary to promote the collection to let people know the collection is there.
- IPI does not do conservation treatment. They work more with prevention. They need to know the final product and how to mitigate any possible damage that can occur.
- She volunteers with an association that also has an archive with amateurs with no archiving experience. This is how it goes (it is normal what we and the Ciba Association are doing). It is important to establish good practices and everything should stay in the same building because then things will not come back. We should create a set of rules/guidelines on how everything should be organized and to make everything accessible. Knowing what you have and giving access to it.
- Organization has to be intuitive. Force ourselves to think more broadly. What makes the most sense to organize everything. This will be beneficial to do so that anyone can easily follow it.
- She likes our organizational system. Depending on time, you can always come back and further define in more detail for example, how many of everything there is.
- Object level will take a long time. They need to separate technical literature from photographs first and see how long it takes you, then do a description of what you have.
- Item level, think of the sub-categories (technical literature would need more categories like author, date, etc.)
- She recommends to organize things with similar materials. (papers put in archival boxes) Box level finding aids. Put everything similar in boxes. Make sure when things get accessed that they be put back exactly where it came from. Make a detailed enough aid to be able to access and put back assets but not so detailed aid so it doesn't take years to develop. The faster we do it, the faster people can access it.
- You can do finding aids as word documents, excel spreadsheets, etc. Best to do it electronically so that you can have/make copies and have it on hard drives to have backups. They need to have an external location as a backup to make sure you do not lose any data. She would do a word document and recommends we look at libraries and archives and see what they have for records.
- She tried to describe a website where it is open source and you can do varying levels of organization and have access online. (Could contact ASA American Society of Archivists about this).
- Example: Box #1, lab notebooks from 1968 to 1995, then short description of what it is about. Then do the base/box level where you can always go back and refine it and add to the finding aids.

- Collection room conditions: Suggest keeping the shades drawn to keep it cool as possible. You need to have proper stability to save the collection and make sure they survive. If things smell like vinegar then it is really bad. If there is any way to create a climate in there like have its own thermostat, that would be good. The cooler the better (68 to 70 Fahrenheit or 20 Celsius is habitable but it is not good for the paper. Acid hydro list can occur at around that temperature. Watch out with moderate to relative humidity especially during the winter. You want to avoid dew point and pay attention to temperature (DPKcalc.org). Get a digital data logger to get all the info during all the times (puts data in a .csv file). It is important to know what the environment is. Pay attention to mold and make sure nothing smells like vinegar. Use a dehumidifier and portable air conditioner if necessary (pay attention to dewpoint).
- If anything smells like vinegar, it should be kept separate. Control the moisture. Get a regular freezer that does not have a defrost cycle and using paper proof plastics to store it in the freezer.
- Google Henry Wilhelm as he has done a lot of color photograph preservation.
- Make a repository for this material. The George Eastman museum has a large library with technical knowledge. Better to find a place in Europe try to keep the entire collection all in one place.
- If the material deals with the historical significance of the area then an institution could be interested in taking it.
- Search National park service gram for an example (2009).
- The materials are historically significant to the history of photography. Some people have their records lost while the majority of the information is there. So, the interest is clearly there but the real question is if whether someone has the space/finance for it. The problem institutions have when receiving a collection is not just space but also the financial commitment that comes with transportation/maintenance so you need a grant/sponsor. You need someone to finance everything from transport to maintenance and such. Get a donor to give a grant. Federal and private funding could help with this. Having an organized way to transport and organize everything will help someone give you a grant easier.

#### **G.5 Sebastian Dobruskin 9-20-18**

- Description: Professor of HKB Bern. His job is 40% teaching students on paper and photography conservation. The other 60% is working as the head of the research area.
- As a researcher you try to find out the stability of the material and find out where to store the material because all you can do is slow down the degradation.
- There are guidelines for a set of materials like paper. (It should be stored in an environment that is 18 degrees Celsius and things like that)

- Most of these developed out of industrial standards to like guarantee shelf life and things like that. Photo conservators saw these as ok standards to start off with.
- 30% humidity is too dry for old plates because the glue is not strong so you get chipping. You now have standards to help conserve these things.
- Identify problem, research, find solution, then teach it. When there is an exhibition, they go to them and try to restore/conservate it and if it is big/important enough they will make a research project out of it.
- Which material used by whom is a big step when helping prevent the degradation of the material.
- Aluminum is a very good reflector of UV light.
- 28 people worked in research last year (3.9% were full time researchers).
- Most of the material they look at is very old. (not much info about the process of how it is made, etc.) After World War II, people really started to publish more patents which helps with the archival process.
- For the Ciba collection, it is good to have it just as it is with no added info as researchers would find this more useful as they look for raw data. For students, it would be too difficult to just have the raw data so you would have a summary and detailed info. It is good to have the knowledge of the people who did these techniques.
- In industry, you have all these databases and this does not work for their institution so they have to use their own database.
- Over time, things change chemically so it is difficult to see the original structure. That is why it is good to have the lab books and reports to better understand the original structure/form.
- If you have dyes, you would look at the color index and which dyes were used by whom and when. (the historical info is very important too)
- In photography, there is a lot of forgery and this is very easy to do as people will not know the difference. You have to look at optical brightness and other characteristics to see which is the original.
- You info you need to include when archiving are things like what year and which company. Patents also help but often it is really hard to get this info. If you have it, you need concrete proof and evidence like showing when the material was first used or a dated print.
- They have an online database/network where people can exchange info/research where you give/receive info for free.
- Ilford went out and now you get the info (it is not secret anymore) and the problem is where to keep the info. They had a huge library.



- Depending on the time you look at like the 80s are digitized, it would be more or less easier to access. From 60s, you may not find many interesting things to digitize and then before that, there are even less interesting things.
- Conservation of Photographs. Jim Riley from IPI
- He teaches the students what they need to know like what material is used and other things like that.
- Through conservation, you do an examination (gaining info helps you understand it, who the author is, what material was used and it adds importance/value to it. When you have the context/understanding, it makes a big difference) When you have a problem, you start to dig deeper and do more research to solve the problem.
- For photography, the most problematic could be dyes but all you can do is expose it as much as possible. One instance of other people trying to conserve: A dye was degrading fast and what they did was add bleach and that is bad as they impact the photograph. What this institution (HKB Bern) would do is take a scan and color correct the scan and print it again. They work more with restoring like with tears. Paper conservation is more than just photographs. Water color is easier to retouch as you know what is going on.
- You rarely retouch photos, you leave it as it is and retouch the scan and print it again.
- They get donated collections from museums like negatives but it would be in very poor conditions. Also, some museums would go to them if they had an accident with a work like if it fell and glass scratched it, then they would try to fix/restore it.
- In Switzerland, most museums have conservators. Some collaborate with each other and other institutes. You cannot be the specialist for everything in the museum and that is why you have these networking systems.
- The Bern collection can give advice to preserve the Ciba collection but they will not keep it. They would have to examine it first.
- Even if you do not have the experience, you can always examine it and see what is possible or impossible to do.
- Digital is a very different story from Cibachrome and other photographs. Paper and machines have changed over time.
- He does not do that much contemporary conservation, mostly just works with old stuff.
- Every object is different so there is no one standard to follow as there are different materials. It is just the examination process that helps conserve each piece.
- One artist used fruit juice in his paintings. Another artist used dried radishes and bread and exhibited them.
- The pattern scheme from Ilford was divided by number. They kind of maintained that pattern. They have no fixed pattern to do that.
- When you need something, you just ask the people that are working with the material to get it for you.

- It is hard to keep up with what is being done like with all the student projects. It is difficult because sometimes people just do it as a hobby so they do not share their info even though it could be useful.
- Barcode is a more general way to organize the Ciba collection. It might be useful to create families or similar sections grouped together (important to know when and where).

#### **G.6 Rod Parsons Wendy Ericsson, and Brian Sammartino 8-28-18**

- Getting Zoom setup, having everyone join the call, etc
- Wendy started working with Ilford in customer service, eventually worked up into technical services, she taught products, etc. to customers, finally ended up as marketing / communications manager
- (Rod?) studied photo tech at university of London, was a professional photographer for a while, then worked in Ilford in the UK for quite a while, in 1988 moved to the US to head up technical services
- Joined the “black and white side” of Ilford after the 2004 background
- Brian studied photo science at RIT, worked in motion picture labs, joined Ilford in 1972, worked in technical service until 2001
- Brian spent most of his time working with Cibachrome technical service
- Wendy worked with the whole product range of Cibachrome, later in her career she learned more about the technical side of Cibachrome
- The cibachrome customers became more like “partners” and “end users” rather than customers
- Cibachrome was used in a lot of odd places, like airplane walls and casinos. The product was well liked in these niche markets
- Wendy says it is important to keep in mind the difference between the commercial applications and the hobbyist / fine arts people
- Even the fine arts people wouldn’t develop their own cibachrome prints
- The commercial and hobbyist products were different
- The copy materials machine was very expensive but also very much on the bleeding edge of technology
- Ilford was one of the first companies to start moving into digital when it became clear that it was the future of photography
- The users of Cibachrome really did love it, it was a very, very strong niche but ultimately the decline of film in general was too much

- Color disappeared much quicker than black and white because it was so complicated. People didn't want to work with the chemicals. The chemicals were questionably safe, etc
- Talking about us and why we're doing this project
- There used to be people who would do demonstrations out of their car of cibachrome development all around the country to promote the product
- Talking about people who still use Cibachrome, talking about how there are still two left in the US
- Wendy thinks that "progress moves on", that it's nice that people still do old photo techniques because they do it out of love for the art form
- Brian doesn't think it's very sad
- Rod notes that people really aren't making prints in general anymore
- Wendy thinks the resurgence of analog photography will continue or at least certainly hopes it does
- Most of the problems with developing cibachrome film were user errors in processing, handling, etc
- Brian doesn't think Cibachrome was really that complicated, it was just different from other processes. It did require a bit more precision though, it had less tolerance
- Wendy enjoyed how happy Cibachrome made people, how the physical, handmade prints were special to people
- Wendy and Rod think that there is still interest in the history of Cibachrome among artists, photographers, etc
- Wendy has a book "from Ilfochrome to Cibachrome", Rita thinks it is part of a three-volume collection that is "the bible" of color photography for German speakers
- Rod thinks digital is the way to go for publishing the Ciba information, Wendy thinks "something that students can search" is important
- Wendy likes the idea of a small museum, Rita thinks that it's not really feasible beyond the small museum already at the Cibachrome house, a "real museum" is unlikely to happen
- Wendy thinks an online directory of Cibachrome prints would be good for the website
- Wendy doesn't think many people beyond a handful of researchers would be interested in the actual technical Cibachrome information
- Rita says conservators and restorers are interested, but emphasizes that this is not the general public
- They think the main interest in Cibachrome is in the prints, their vibrancy, etc, that is where the "passion" comes from

- More talk about the archival properties of Cibachrome, especially in comparison to other products of the time
- Wendy suggests a traveling museum exhibit featuring Cibachrome prints would be a good idea instead of a permanent, full scale museum

### **G.7 Sonja Fessel 9-13-18**

- Description: Curator of a photo archive in Philipps-Universität Marburg in Marburg, Germany, editor of a photography journal.
- “PhotoMarburg”. Part of the University of Marburg. They are not a teaching institute. They have an old photography collection found in 1913 or 1930’s. She is head of the photography collection. She is also the photoeditor of photokopie (journal)?
- The majority of their collection are photographs. They have a lot of negatives and prints (up to today). A lot of negatives of glass techniques and nitrate films. They have a smaller amount of cameras. They also have old cameras and lights and other equipment. They have very little written records. They also buy photographic archives from institutes. When they takeover other stocks they have some written documentations but a very small amount.
- They do a lot of research and 8 people are on the photography team responsible for negatives and such. The collection always needs to update and renew their storage. So they do a lot of research in that area.
- Their collection does not have a lot of Cibachrome prints and not a lot of art. Knowing how the photography is made is essential to keep it in good condition for as long as possible (like knowing what ink or paper was used). This is good for conservation. The technique also helps the image itself. Photographic techniques are very important to consider. People have come to understand that it is important to know how it is made in order to preserve it for the future. The question of how it was made affects how it looks.
- The Ciba collection should be made public online. It should be made easy to access from anywhere in the world. Who are we making it acceptable to is an important question to ask. It needs to be understandable for the public. For example, the regular public will not care about chemical reports in detail but chemists will care. Good to present documents online without interpreting them ourselves. What we really need is a good search engine and to be able to access the documents (range from researchers to the regular public). Should have two search engines; one that is more general and another that is more specific. Research questions change quite quickly. If we make documents accessible then we can reach more people that will work on it.
- “PhotoMarburg” has a large department of digitization and another IT department. She does not know much about this.
- General process for new photo stock. She does acquisition, miniaturization and they have inventory members to document any info that comes with a photograph. If there is something written on the box like date or pho-

tographer, it needs to be documented at that moment because the records will be put in new archiving materials. Then it goes to digitization department or if there is a problem then it would go to restoration. The object itself goes into storage and onto their server. The info goes to the cataloging department and they add all the info that comes with the document as well as add a description and other research they have done (materiality, size, what it actually is) and this info is put online.

- They have a huge amount of their collection online which you can access for many years. Marburg was leading for photography archive access. They have a huge public searching for database and they then ask for digital copy or ask for high resolution files for research. Before if it was really popular because there were more people researching in 1930's wanting to look at the originals. People who want to look at originals today are mostly curators or people from museums that are interested in making an exhibition. They need to announce 24 hours ahead of time that they want to see an original. The Archive first tells them to look at it online and then book an appointment if necessary. They need a 24 hour notice because they need time for the object to be taken out because of the climate change.
- Having an online database is great because more accessibility to more people but it also protects the original as most people do not ask for the original anymore. So it preserves the original more and it is only taken out a limited time. That is why it is very important to put as much info on the database as possible so less people want to look at the original.
- How to present something: Glass plates usually have edges and main way is to take a picture and digitize and crop it to make the picture look nice. There is a change starting now that researchers want to see the edges like if the artist wrote their name or determine the film type of the edges. Instead of showing the best picture, it is better to keep everything.
- For a written manuscript, do the full page with all tears and everything as it is.
- They have a very complex system for negatives to separates negatives from paper prints. Most of them are really organized as it was a really good scheme organized by size. You have roll film and flash film. How big is it, 18x24 cm, put in a classic archiving box and the box will be labeled with numbers to tell you where exactly it is going. Like LA 3 small image roll film (Light A's abbreviation tells you the description of what is being stored). Number tells you where exactly to look on shelves/rows.
- The original objects are organized by size as storage space is really expensive. It is much easier to organize by size. (Bad example to do: have a big film next to small film then small film should have the same amount of space as the big one so it wastes space).
- For their positives, it is very different scheme. They had large collection organized by artists, graphically, etc. and these prints were not inventoried. They are currently working on inventorying all the prints organizing by format. Online database would tell you where exactly the print is to pick up or see. You do not need to curate by artists or motifs.

- Their collection can go straight to the database and put in a word like photographer or similar motifs or whatever. They can just click through to see if the info (story, photographer, details, where it is located). More focused on general audience.
- They try to keep the language simple so they do not have too many terminologies to make it easier for the public but also adds info researchers would be interested.
- Eventually have searchability so easy and convenient that one can find the exact literature they are looking for in this book, article, etc.

### **G.8 Jean-Noël Gex 8-28-18**

- Description: President of the Cibachrome Association, Cibachrome Specialist.
- After Ilford, he worked in the government of Bern to give authorization in chemical products.
- Why he decided to make the association: It was in December 13. We are going to sell Ilford to Japan so everything would be thrown away. He was thinking about the memory of the site and the impact it had to the people. In research center, one product was Cibachrome. So it means something to the people. Fribourg was well known as mainly catholic and agricultural / rural.
- When Ciba or Geigy came to Marly, they made the university of Fribourg and created different departments. It was quite important to Fribourg. Only 3,000 students when it began then 4,000 students in the 70s, and now they have 10,000 students. It is important to have something to remember Cibachrome. (It would be good to see if the University of Fribourg is interested in the Archive / Ciba collection due to its historical relationship with Ciba.)
- In 2013, they produced a large quantity of Cibachrome material. One Chris Burkett (artist) in Luomo, New York purchased 100,000 square meters of Cibachrome which was the very last order they made. Different people will need different things like recipes. They still have members that still use Cibachrome. Important to have a place to call or contact for them
- Important to have a place to exhibit Cibachrome pieces. Have a sort of Cibachrome Museum with recipes, books, machines. They had a history with glass plates. At one time they stopped making autochrome, they know the recipe but it is impossible to reproduce it.
- Polaroids. Kodachrome process can no longer reproduce. Should have available information to the people for them to know the history of photography.
- (Ciba) It is a good thing for Marly/Fribourg.
- 1980-1985 when 2,000 people had a job. Proud to give 2,000 jobs to Marly and Fribourg.

- Then there was decline and they lost a lot of jobs. Spends 10 hours a day in Bern working.
- Wants to give back more to community/region
- They would like to bring back support for photographers and young artists.
- Next idea is to call photographers to have an exhibition with them using Cibachrome prints.
- Big space for exhibition in Fribourg to remind people that Cibachrome was produced there.
- There are some active labs making Cibachrome.
- 1890 Fribourg internationally well known for photography. There is still art in Fribourg.
- Ansel sadam went and showed collection.
- Everything was kind of linked with Ciba in Fribourg
- Before Ciba, there was Telko Photography company. It was formed by the development of alpha chemists from Germany during 1935. They went to Fribourg for its photography history. During the War, there were several Germans not liking the war so they went to Fribourg.
- Ciba decided to buy Telko to get labs and coating facilities. Ciba's acquisition of Telko is one of the primary reasons Ciba eventually invested in the development of the Marly site, due to its proximity to Fribourg.
- Cibachrome was dedicated for professionals. An invention of Ciba. Now Ciba has research center. It was closed and private to the city of Marly.
- Ciba-Geigy has developed a lot of products like pigments and dyes of Ferraris and glue components. The resin used in boating and such developed in Marly. The flagship was Cibachrome but there was a lot of other developments. A lot of scientists developing innovations. That is why it is the Marly Innovation Center. Try to extend the memory of everything developed here in Marly but it would be difficult to collect all this information because they all left in 90s.
- The house has a lot of archives. Do we need to keep all the designs of the coating plans? Maybe for the engineers but for them it is just a pile of documents. But for Jean-Noël it is important to collect the memory (To keep what was good. No sense to keep things that failed. Find out what to keep and not to keep.)
- First used an aluminum foil base but then switched to a polyester. It is very difficult to coat paper. Better to put it on film, not on anything else if you are trying to coat.
- He was a chemist starting with Ciba-Geigy processing the chemistry.
- Developed a passport photo to dry in 15 seconds. A lot of innovation at that time. They used gelatin with artificial components.

- His job was linked with magic because it starts with nothing and eventually an image will appear.
- 2000 was the year we see a lot of change in photography. Tried to use photo technology but for other applications. By the beginning of the 2000s, they knew that the world would go digital.
- Eventually, some chemists went on to work on the development of transparent solar cells.
- Thinking how to use their tech for other applications.
- Using black and white film only lasts 4-5 years while Cibachrome lasts way longer.
- There was a big business in archiving data. They needed microfilm. Cannot make it on site because the production process to make it was huge.
- They always had ideas but not a lot of financial help.
- Thoughts were to write a book and keep that book because to keep drawings and a collection is huge. The technology of coating is such a wide web. Then you have the product having archival properties. A lot of museums have Cibachrome prints for this reason.
- They have a workshop on how to help photographs last longer and it was to keep them in the fridge while Cibachrome can be kept at room temperature and still last long. “Probably in 200 years we will only have Cibachrome prints, all the rest will go.”
- Better to keep all the memories in one book. There are already bits and pieces out there but just need to piece them together. Everything is written by different writers / artists like Wilhelm. Then a photographer that uses Cibachrome can use it not only for prints but to also capture light directly to picture. The use / application would be interesting to put in the book. Propose to talk in the book about not only the material but also the application.
- Rita worked with Inkjet product but he was never with that. He had a link to digital and past photography.
- A past project was to use dots on film to put more info onto film.
- The closure of Ilford: They knew it was coming. In 2000, they were trying to use technology to keep jobs. What was unexpected was the rapid decline in the use of inkjet printing. The coating was in high demand for them as they used it literally every day. They used it as an investment having all these coating technologies but then they never used it.
- They knew Cibachrome finished its lifecycle so they announced stopping production in 2011. So they asked for last orders to come in. Demand was 1200 square meters per years.
- Last coating was for 100,000 square meters that will last for 10 years. Customers appreciated the fact that they announced it so they could order more before closing. In five years, there would be a nice market for Ilford.



- For the last coating, it had more yellow dye so that it could last longer as they say over time it starts turning yellow (unused Cibachrome). This is really convenient for customers and that is what they told the customers that they would be able to use it until 2022.
- He is sad that photography has disappeared. An example was with music with vinyl then going to use CD which only lasted for like 5-10 years. A lot of newspapers are disappearing, publicity in newspapers and magazines now go to Facebook and online advertising. The resurgence will say that black and white will never disappear. Color photography is much more difficult with a lot of technology, chemicals, expertise, etc. Black and white is simpler using silver and easier to produce.
- He is more sad about human beings and what we are going to leave for the next generation. He has a book from 1850 and we still use physical books today which shows how long physical books have survived throughout history. Eventually they will reinvent the wheel in a few years.
- That is why he wants to make a collection of books with specified and separate topics so that certain people will just have to read one book instead of several. He hopes not to have anything on web because eventually it will probably go away. He would prefer something on paper to remember the collection.
- He was amazed with the archiving in France and Germany and they really need to preserve what we are doing now.
- He is a scientist but a human being. It is not on a scientific level. We have done what we needed to do. It is more philosophical now.
- New innovation will need like five years in order to make something new happen.
- He would like a final copy of the project report.

#### **G.9 Corinne Goumaz 8-29-18**

- Description: Secretary of the Ciba Association, interested in photography aspect, from Human resource services.
- Interest in photography brought her to the association.
- She was born in a village nearby. She started in photography because she liked what the people were doing. Photography is just one method/tool to approach the people. Photography helps to explain what people were doing and tells their story. Each photographer portrays different stories. She started to use the technique to be near the people.
- She knew in Fribourg there was a really good photograph lab but no one was communicating with each other. She created another separate association of people who were passionate about photography so people could come together and communicate with each other.

- In 2014, Ilford stopped activities which was a shock. For her it was important to keep the memory/photography.
- With Jean-Noël Gex, she developed Cibachrome tech.
- She started learning in Paris with Cibachrome tech. It was difficult but really good quality tech/ machines.
- She came back to see Jean-Noël. Told him that we can not let Ilford die (let its memory live on). They met with Jean-Marc Métrailler. They wanted and planned on keeping its importance, to search what is important, and to transfer the information to the next generation.
- Important Note: She wants to save the history of photography, the technology and history of this site.
- She said something along the lines of, “We must go forward, it is sad that it is finished but we must go further but at the end of each industry a new one is born to continue in its place. Digitization is coming and people are using different technologies and applications and people using less Cibachrome so they had to follow the innovation.”
- She does not want museums (no physical place), but the history more on the application using something like Wikipedia or online so that everyone can have access to. Better to have something digital rather than physical. Better to know where there is some Cibachrome photography and to have some form of network of people who are passionate about Cibachrome.
- She loves to receive/learn about history. Nice to have the history somewhere where everyone can have access to it.
- There does not seem to be a lot of public interest towards the site within Marly. The people that were working here have an interest in the site but the people that live in Marly that do not have a professional connection to the site do not have an interest.
- New photographers may be interested. Gex has contacts with people who are still making Cibachrome (has technical information). A lot of interest on the technical side but maybe will only last 10 years and then after that, new technology will arrive.
- The canton historian and the photography circle will be interested.
- Create something that is not a museum that has more of an international connection with people. The museum is nice but the same can be found in Vevey or Paris but it is necessary to emphasize the connection and the formation of a community.
- The leftover physical assets could be donated to museums or universities as an end goal.
- Collect oral histories of people that worked here would be nice to incorporate into the overall scheme.
- She is more interested and focused in photography rather than anything else. For the village, it might be better to know the history of the industry around here and what happened.

- The Ferrari red was developed here. This fact might be nice for the people to know.
- Three different subjects she would like to see on a website: recipes (how they produced the Cibachrome with what tech and products), photography with a gallery on Cibachrome and another print to show the difference in quality, and the story of the photographer and museum that used Cibachrome.
- Telko, Ilfochrome, Cibachrome. Everyone just calls it Cibachrome now even though they changed it before.
- General history of photography. Also interested in the photographer and their story, their reasons behind the pictures as well as the picture itself.
- There are different kinds of photographers with different approaches for example some are journalistic yet artistic.
- She lives nearby. She works on the site in Human Resources.
- They mostly have volunteer work with people that care about the museum and the photography besides having the collection and the museum. There are also some members but not a lot.
- Large photography community in Fribourg. Jacques Tavo was really popular photographer in Fribourg that makes black and white pictures. One of the best laboratories to make pictures was here, they had Ilford, so photography was quite important in Fribourg.
- Photography forms a big part of the identity of Fribourg in terms of its history.
- Nice to have a database where you can request physical copies on the website.
- She was in charge of putting together the cibachrome.photo site

#### **G.10 Gubler Labs (Rudolf Gschwind and D. Gubler)**

- Ilfochrome seen here is living history. They used to be a company that made microfilms back in 1980's.
- Advertisements used photographic paper. Became like a second business unit. After 80's there was like no business in ads so what remained was the archiving branch.
- They were still selling film-based archive medium. Worked with chem and physics professor to learn about the humanities world. Clash of culture was like science and humanities and as a company they were linking them both. Making knowledge out of data. With humanities they are now making use of the information tech instead of photography. There was a big network involved. Rudolf is a member of the board of the company.
- Distant placed data chunks all around the world. To send whatever info and they would put them together if something went wrong. Now called blockchain.

- The company is made up of three units: Manufacturing part (working with hands on photographic and archival material), software development (they are not a software house) testing code and sources and such, and consulting in info tech. All of these units are growing from 20 to 45 people working since they started. Last year it began to decline.

### **G.11 Rudolf Gschwind**

- He started in chemistry 30 years before Rita. This was before personal computers (1986).
- He was in the photographic institute in Basel and he had to teach so he had to know about everything like programming and how to write the driver scanning interfaces. It took them a week to scan a good image. This step was from analog to color photography. He knew all the analog stuff (1960s).
- He did not want to make photography pieces. He later learned digital tech. Sabbatical project was doing a color photographic simulator. Choose settings and such to see the end result of the color photo. She used it but then after it was never really used. The program worked fine when analog started to decline.
- A French scientist used one measure of exposure unit but it arrived to late as there was no interest. It really began it 1995.
- They called it electronic imaging instead of digital. Computer power was not enough for digital. It took them years to get enough data/power. You would do color corrections on screens.
- Same electronic stuff that happened to digital was also used in videos and phones.
- Before it was really a photographic lab. They were very specialized in Cibachrome and they did prints and it was very stable. Photographically it was not easy. Later on, when digital came they had one laser printer (3 color laser exposure printer).
- After it also changed, they wanted more towards Ilford. They were very few in Europe working with color photographs.
- In convention, there were a lot of people. Fribourg made film for industry. You scan, you treat, and then print a negative and developed it.
- Scanned a single image to apply to a film. The machine was developed for the cinema industry. It was fine until their fall. Very few photography companies left like Fuji and the movie part of Kodak. They produce material but no more product.
- They had to stop and a company in Germany bought it to make projection film of Kodak.
- Half of it used to expose large barcodes. The idea so that you could read it back always. Germany has state records microfiched. In Bern there is a cave from sandstone industry where the state records are held.

- They use jpeg 2000 instead of tiff because it is much slower. Also use pdf.
- Normal black and white is for making books to have high contrast. They had advantage to have color so they used color and laser. Color micrographic films going into black and white negatives. They do not make it anymore.
- Use microfilm to make a copy and used a filter and then you put into a machine so you can look at it.
- Three layers have three color densities and each have a color bar code so that you could see each layer of color separately. Problem is not resolution, it is noise/grain. Holographic films have no noise.
- Expose with a DLP to give a sharp picture. They do not use lasers for these microfilms.
- The data has to be readable by a regular scanner in case of too much advancement into the future kind of like what happened to analog.
- On a normal film, you have a white book which tells you the order of the pixels and that tells you how to read the data. You have analog and digital data where you can mix it. When you put a picture onto micrographic film, you lose resolution but that is why you have the data (barcodes/patterns) there so you do not lose that data/pixels.
- It is really expensive, the black/white material and silver is expensive.
- 7 GB was sold by Kodak for \$1,200.
- When you do digital storage, every 5-10 years you have to do migration and energy storage is expensive.
- If you do not want to access it then you use analog so you save energy, storage, and money. You would then put it digital if someone asked or requested to see it. Analog is like a backup.
- State records in caves because it would be protected from natural disasters.
- When developing this positive material, you have to pay extreme attention to details.
- In photography, you buildup silver so that it somewhat gives a good result. You need the silver as it goes to destroy the dyes and you need bars which is really acidic which destroys the developing machines. If you have a scratch, it basically destroys the microfilm. With Cibachrome that is not a problem.
- They do not have chemical labs here but maybe in Germany.
- Problems with coating and such but microfilms had low demand. Any defect when you enlarge it, it ruins it and you could see it. It was not practical.
- Customers come in and they had to digitize but that was before. Now they want more. They want the whole concept and how to do the metadata. There are standards. They need to know what people want to do with the pictures in order to give people the proper metadata scheme. Public people just want to put things on the internet. Companies want to receive info from their products.

- There is not much order and there are a lot of different things you look at like language like what exactly they have. You need to find out the exact info in the lab books and such.
- It depends on the archive. They will scan and then give you the metadata. Gubler lab only does small companies and industries. They make the digital archive.
- Annual reports, special and technical reports and then labbooks with first experiments.
- They read it all, structure and relate based off what they find out and then give and make the metadata structure. Make it chronological.
- Once they were brought library index cards and they wanted to scan it. They had to make out what was there so they had to read it and you need other people to scan and operate. In industry they need to read what this is.
- Ciba collection: Someone needs to read it to see what is there. If people want to keep their records they would need to identify it.
- Why they stopped Ilford production was because the beginning of inkjet printer where it was cheaper and could do bigger sizes and the quality of the picture was not that much of a concern. Cibachrome was more expensive. When digital came, there was a change of the way to look at print and print was a bit gone after that. There was business in having a big display and translucent material. Inkjet cannot put so much color/layers compared to Cibachrome. Then you use l.e.d's. to shine through the material making it attractive for ad use. Then you have data stored on a computer and do whatever you want and migrate once. This is the act that is expensive where you lose data. Migration is a whole new material where you change the format and copy everything to make sure you do not lose anything. You also need to proofread. Backup is a backup. An archive is just it. There is no other backup. They use info tech but they do not archive it.
- The archivists want as much as possible while the customer wants the least amount done (this is cheaper).
- For scanning, it is not a problem. It is fast to use a camera and depending on the megapixels you want, the more expensive it is. When working with black and white, you assume 500 D.P.I.
- When you have 35mm slide you assume 4000 DPI which is more than enough. Resolution is not the problem, it is the gray level you have.
- The form you store it was .tiff format which had no problems but then resolution and archive increased. There was a long discussion about compression with and without loss. JPEG has loss but it is the original digital form. It is not good for archiving. Factor of two to three for lossless format.
- How much info you can put on a bit. 10 to 10 micrometers on one bit to put the max amount of info on micro-film. Film is not so good because it is really noisy and grain is a real problem. For text you use pdf and jpeg compression. PDF is good for multiple pages. Most of the time you use OCR with a lot of errors.

- With .tiff, you make no mistakes. You store it as tiff, it is accepted but it is big. As time goes on, JPEG 2000 is being more and more accepted as an archival form even though it is lossy. However, the format discussion is not yet finished.
- He would give the Ciba collection to a public institution (University library). Archiving is a matter of money (no money, no data) because of the migrations. Public institutes would have many data computers and such to work on this.
- Problem with database is more complicated. Lukas project: how can we keep research info within humanities? He will help us better understand the complications of a database.
- Archive or library is best.
- Archiving begins and ends with money.
- Christoph Fogus has done error correction code.

## **G.12 Jean-Marc Métrailler**

- The site was developed by Ciba in the 1960's. The site was chosen specifically because of its location in Switzerland and its proximity to Fribourg. About 80% of the current structures are original. At its peak about 1200 people were employed at the site. Many people had moved from Basel to Marly. The population nearly doubled and many jobs were created. Service industries developed to support the people that moved to Marly and their families as well.
- Three Main Activities: Research and development of Photo-Chemicals, Polymer and Resin Research, Photo Paper Manufacturing (after acquisition of Ilford in 1970's)
- While manufacturing did occur at the site, most of the focus was on Research and Development. Eventually as the market diminished, Ilford closed operations in 2013.
- Cibachrome is a complex and expensive product. The manufacturing process was not simple and required specialized machinery. Compared to other photo products, it was vastly superior. As such, when it was discontinued in 2012, many artists and photographers were upset.
- After the closure of Ilford Photo Company, the landowners, Ilford Property Company, began renting out the property to various startups and companies in need of office space, such as 3D Systems.
- The Ciba Association formed almost directly after the closure of Ilford in 2013. They wanted to save as much of the knowledge and history of the site as possible. A large focus of their work was dedicated to deciding what was worth saving and what could be let go of.
- An interesting fact is that the house the Ciba Association uses was the former 'leisure house' for the Ciba employees.

### **G.13 Jean-Luc Monteleone 8-29-18**

- Description: Secretary of the community of Marly, Historian from background.
- French speaking with translator.
- He works in administration of Marly and knows about the importance of the Ilford / Ciba-Geigy site and the impact on Marly.
- Brought some books on the history of Marly.
- He is going to explain the association, the activities here since Ciba, and explain the purpose.
- The origin of Marly came mainly because of the river.
- Roman officer that settled here 2000 years ago, his name was Marty Jacuse Martlieuse.
- Marly was a passing place to go from Alps to plateau. Road to transport wood and other products.
- During Middle ages, there were rich families, (nobles and peasants) a number of convents and establishments. there were wood and skill shops to give education to the people within the region.
- Mostly farmland peasants but there were some water mills (machine powered by water), paper making machines, and they used water energy to push wheels and machines.
- The first papermaking was in the 15th century and lasted until the 20th century marking the beginning of the paper industry in Switzerland.
- Industry started in the 19th century.
- Up to 80 people working in the paper making factory. The land was made up mostly of farmland and farmers.
- One big step of the development of Marly was the bridge made in the 20th century connecting Fribourg to Marly. Before it was much harder to get to Fribourg.
- There was a big industry here using wood to make all types of things which lasted since 1978. (Sinclair)
- The reason why the site was here was because during the 50s and 60s, Marly was trying to develop the industry as the canton was very poor and economic development was very low. After WWII, people gained more ideas and motivation to start to make more industries.
- 19th century had the making of the University of Fribourg which helped attract more people. Land here was cheap compared to Basel.
- There was proposition to develop Ciba here since there was good connection, roads, and the university was nearby. They were looking for a photography site.



- Still some photography here in Fribourg with Telco so Ciba-Geigy bought Telco and Ilford (from England) and Lumiere (from France). Bought the site because cheap land and close enough to Basel.
- Today, land cost between 300 - 500 francs square meter. Back then, it was 3-5 francs per square meter and it was cheaper to make buildings here too. Basel people could live better here because more space and cheap land. People could have good land here. Marly was a rural town that is quiet with low pollution. Basel was a noisy, polluted city.
- Another factor was the electricity available from the hydraulic dam built in the 1940s (creating an artificial lake in Gruyere?) which provided a reasonable cost of electricity and water was also provided. They needed a good supply of water for the process.
- Town was interesting in terms of an economic aspect. 5,000 inhabitants lived in Little Marly and big Marly. Now about 8,500 people live in Marly. They really helped with economic stability in the town and population increase. Salaries were good and there were low taxes to help attract Ciba even more on coming and buying the site.
- There was a lot of contact with authorities of Marly and Ciba. Ciba bought a lot of land on the other side of river, trying to make a chemical processing plant but ended up with a garden.
- Two years later, Ciba sold a lot to investors, some of them were really bad forcing bankruptcy.
- Initially they (Ciba) really liked photography so they wanted to make photo products. They were the initial visionaries. Later on with new successors, they began looking at the financial side of it but Ilford was never that financially successful. Ilford always had debt and never really recovered even after trying to sell it.
- The Japanese owner would take money on Ilford and almost never got the money back. Never got back to a good condition. That was one reason why Ciba left because no economic prosperity. Making pigments and chemicals was separate from Ilford. Ciba itself was separated from the pharmaceutical division which later moved on and became really big, famous, and successful.
- Traditional photography had no big future. Ciba saw this and began selling.
- Another aspect was Ciba was public and had farmland. There was a lot of area and they tried to tame the area. Tried to control the flow of the river to avoid damaging the farmland around. Ciba first privatized the area when they came attempting to protect secrets, but now is changing because it is just a collection of companies. It is currently trying to change the area for people to live there now. Before you needed a solid excuse or an invitation from a person that worked there to get through the gate. It is trying to reopen itself to the public.
- Generally, Ciba was very welcomed by town authorities and people as they brought with them the promise of better economic prospects, more jobs, and good school development. There was an apprentice school and German school. They changed the language, religion, and linguistic border. Increased the number of German

speakers in Marly. Professionals came from Basel and Fribourg University. People from Fribourg with little to no experience could work as construction and production workers. They were managed by Swiss Germans which angered some people in Marly. It provided work of all kinds with different specializations like the need for products like lumber, carpenters, painters and other artisans.

- Multiple levels of interest, not only in Marly. Many people heard of Marly because its new developments were discussed in newspapers and some families not from Marly had relatives/members working here.
- For example, Vinclair was a company but it did almost nothing and it died but this site never really died.
- Before the name “Marly Innovation Center”, it was called Ilford Imaging Property. They could find powerful financial support like local millionaire invested in the site with residents and more. Still trying to make the site economically stable.
- The town of Marly got its money from the taxes of the people not gaining much money from the site. So it is better to have more residents to have more money and better economy.
- He has a positive outlook for the site because making it residential means it is making the site more public.
- New tech increased public interest and historical interest and they want to publicize it for people to know of the tech and what was done here.
- There is probably worldwide interest because Cibachrome was so famous.
- People very sad to see them disappearing like photographers. People would sell their Cibachrome prints for a lot of money and now they cannot really do that for lack of supplies/materials.
- (Ciba-Geigy) Ferrari red was developed here. A lot of research done here to improve technology (it was not only photography tech) and this tech can have many applications.
- 3D systems making new resins and printers in this area.

#### **G.14 Sylvie Pénichon 9-21-18**

- Description: She works at the Art Institute of Chicago as a senior conservator. She has written two books about color photographs and has co-authored another book all published in 2013. (Twentieth Century Colour Photographs: The Complete Guide to Processes, Identification & Preservation, Twentieth-century Color Photographs: Identification and Care, and Color: American Photography Transformed)
- Her current job involves overseeing a three-year \$280,000 grant to assess and catalogue the permanent collection at the Art Institute. She manages the collection and preservation of the photography collection.
- Every photo that comes in or out, she sees it (the condition, how it should travel, what kind of housing/storage it should be in, treatment, etc.)

- The collection is kept in alphabetical order by artist's last name and then by size (box, frame). They also separate color materials.
- Their institution is always looking for more info about how sensitive to light photographs and other works are, and things like that.
- She wrote a book that has a chapter dedicated to Cibachrome and at that time there was no real info about it besides advertisements. Polaroid archive in Harvard/MIT could be beneficial for us to look into.
- Everything is important for conservation like chemical structure, binders, dyes, modifications to the process. It can give clues to knowing what the material is in the collection.
- Something overlooked today could be valuable in the future.
- Digitization has made research easier so you do not have to travel and such. Online documents would be good for us to incorporate in our plan/recommendations.
- For visuals, it would be more complicated but good to have. Best to have the text as it is and have it transcribed online (would be nice to have both)
- Broad description of the archive is good to have.
- Archives in England and France are similar to the Ciba collection as they have notebooks and reports, etc.
- She would try to pile and group things into categories to try and get a better understanding of everything.
- Libraries and archives purchase loads of material and most of it is not in order so they have to organize it.
- Everyday they have people come in, done by appointment only with the collection manager. Everything on their collection is pretty much available to the public. For requests of big pieces that require teams to show, they will likely deny the request unless they have a very good reason.
- They have an online database where one can search in their collection to see prints and notebooks.
- The goal is to have their collection 100% digitized as they want people to see visuals.
- Travelling exhibit: You have to design the exhibit, make the story like labels and texts, you make a press release and you find an institution trying to sell your collection to them basically, you have to look at how the collection will travel, how it will be displayed (pedestal, frames, glass case, etc.) To convince institutions, you need to have a compelling story and meet with interested institutions. See what institutions have shown in the past, etc.
- Eastman Museum had an exhibition about motion picture technicolor.
- She looked at photo magazines and other publications but there was not a lot of info on Cibachrome.

- She tried to make a chronology of Cibachrome materials that was produced, get their name (Ilford had a combination of letters and numbers) but it was hard to match the public data on it. Tried to get additional support info (was it polyester, what finish was it, what was the thickness).
- This printing material and years of production is important and her list is incomplete.
- Having internal materials that could help and the actual samples of prints that could be a great resource.
- Dissemination could create sample sets that could be placed in institutions. Conservation schools, university libraries, and other places could have an interest in it. If people are interested, they would go to the archive and let people know that the archive is available. (making presentations or announcements to targeted audiences). If at University, you could have PHD students organize the collection.
- Publishing paper at an annual conference, put posters at poster sessions could help get the word out.
- Eastman museum has traveling exhibits, cataloging archives.
- She is very excited about our project and wants to get updated.

#### **G.15 Werner Rutsch 8-30-18**

- Description: Responsible for Ciba research on site.
- 1983-1998 worked 15 years. He was head of additives research (one department of Ciba here in Marly). He was a chemist.
- Ciba had a very positive impact on region. The region welcomed them because they brought jobs, everyone was happy to see industrial activities growing.
- He is neutral to the future of Ciba. They had 15 very good years in the department. It was a great time. They were outside of the big pack. They were small, dynamic, and personal. Looking back it was a good time. When a company tells you to move, you are not happy.
- At first worked in Basel and then told to move. People were unhappy but then became happy. Then it happened again and then they closed and people were sad. When told to move, people are generally unhappy for various reasons.
- Ciba had a strong impact on Marly.
- 1980s was very different. They had a very good relationship with the university of Fribourg. The chemistry department was very happy with them here as they held seminars and some professors consulted them.
- Ciba was a very significant employer of the area. They had only 300-350 jobs not only in his department. For a village of Marly and Fribourg, that was significant.

- Ciba and chemistry department /industry was very positive.
- The history should be preserved and have a certain site where things can be exposed, documented and maybe have a historian write a book about everything that happened here.
- Ciba ended the activities here, he was not sad but was sad at the moment. But he sees/understood the logic/logistics behind it.
- Historic reasons why Ciba came here. It was never justified by commercial reasons. Ciba wanted to enter the photographic business. Wanted to grow that into a world leading business. They had best tech like Cibachrome but they did not survive in the broad market. Had better product than Kodak but ciba was more expensive. In that sense, they failed. If a business fails, it has consequences.
- In '70s, chem industry in Basel thought they had to expand to grow. Needed more space to grow. Marly began to invest but then economic crisis came to Ciba and they had stopped this project in the early '70s. Ciba promised they would bring huge corporations to Marly but then Ciba stopped. Marly created streets and bigger schools in order to accommodate for the huge amount of people that were planning on coming.
- Ciba felt guilty after not completing their promise, so they came here and Ilford had some economic differences. (political reasons)
- In the '80s the belief of top management in the green field was good. In 1998 it was opposite because they have to work closer to the business. Location change from centralized to the green to decentralize closer to the businesses.
- It was sad when closed but he saw/understood the reasons.
- Great feeling, surprise, and satisfaction in the MIC with all the companies. Thought they would produce a dead industrial ruin. The spirit and dynamics they have here are really great and surprising.
- Stayed with Ciba after. Moved to Basel, came to Marly, and went back to Basel. In 1998, he left Marly with Ciba.
- It was difficult when digital tech came. People did not see it coming. For decades people in Ilford were living with questions, "are we going to make it in five years?"
- Now a person does not have to use any wet chemistry tech to take pictures. They just have to use smartphones.
- There is nothing you can do when the market disappears so you make new tech for a different market but was not able to compete with the digital tech in the imaging field.
- Kodak was similar. They still exist but not as big and they changed. They are not the same as before.

- The basic knowledge of photography is still used today like creating colors and pictures even though they are produced in a different way. Imaging surfaces was used for tech purposes. The knowledge could still be used if people knew about it.
- Additives was a technical division of Ciba. Additives were basically like having a small amount added to something to create the artificial effect you want. Chemical compounds you can add to coatings, varnishes, etc.
- Another thing they used was polymers and they are very unstable and light usually degrades it as well as oxygen. As a result, they researched in oxidants, light stabilization oil stabilizers, and additives for photographic and retrographic industry.
- The top layers would have these additives because if it did not have them then the colors would fade. The tech they had helped reduce the fading over time. They also developed catalysts. Had a lab for photo initiators. Turnover of about *3billionandtheresearchbudgetwas*120 million. They had research centers in Japan, India, Germany, England, Italy and more and they integrated the info and activities from all of them.
- Everything done here extends throughout the world. Sometimes Italians came here worked for a year and then went back.
- That was his role as manager of divisional committee (worked with budgets and more). It was important to budget research sites. Ciba owned these sites. They had annual research meeting in Marly with hundreds of people coming from all over.
- There was also a pigment division. Same size and mission as they had for additives. They also had plastic and materials research division. Ciba was more of a chemical company then anything else and Ilford was like one division belonging to Ciba. For them imaging and tech was smaller. Chemicals were their primary focus like cars need stabilizers and paints. Chemicals applied to the car industry, building, construction, etc. Photography was more of a spinoff of what they learned through research of stabilizers.
- Printing industry was also a type of spinoff from the research of polymers. To print newspaper, they would use letters and lead. They were important for making print plates instead of putting individual letters with lead. They made tech so that you could use a sheet of polymers instead. It was like screen printing. Only supplier of photo initiator so it was like revolutionary. It was the technical revolution. If you could put it faster with electronics then you would be able to send a newspaper anywhere faster.
- Ciba did not rise because of photography. It was to add critical mass to the site to stabilize the site. If Ilford is shrinking and you have another business absorb it, it could help stabilize. Ilford was sent here as critical mass and increase jobs and people. First had 800 people which later decreased and they noticed this and added 300 jobs to bring it back up to the critical level.
- He thinks the Marly site is photography and Ilford. Cibachrome -chrome was the tech, Ciba- was the company. Ilford imaging photography was the center but you cannot describe their history without making the link to some

other activities. It was an add-on more or less. The strategic reason was Ilford. The story was Ilford imaging with some Ciba linked to it.

- Marly has happy, very friendly conditions. Marly was French speaking, Fribourg has some German. Basel was German and no French so chem industry would bring German speakers and a lot of German speaking families went to Marly. So kids would be saved to go to German schools and Marly would pay for the transport.
- There were language tensions. It was not really negative. It is a French speaking village and German speakers came and they would have more privileges so some thought it bad but then eventually vanished slowly as Marly developed more. Thought village should attract them while economy was booming.
- They were very supportive of the French speaking people. They tried their best to be supportive on that part.
- Trained to be labrants (still learning), and was educated in French. Chemists they came from all over the world. They paid labarents less and they spoke French while the others were paid more and it was not racism but it was just the way it was (due to expertise difference). There was a class difference that made it seem unfair to the French speaking people but Ciba tried their best to be supportive.
- Ciba had policy to never translate a document. So when people had job here, you could not interact with the people in Marly. If you want to interact you must be able to speak English or German. Could not translate it to local language. They were willing to pay for language courses but they must be able to speak one of the languages to work there

#### **G.16 Rolf Steiger Interview 9/17/18**

- He is retired and is an inventor of Cibachrome film.
- He worked first with Ciba-Geigy then Ilford. He was a chemist. He worked for 25 years in Cibachrome research and development between 1968 and 1991. He researched making higher speed film and inkjet mediums. From 1991 to 2002, he was retired but worked as a tech consultant working on the application of nanotech for lighting and sensors.
- From 2000 to 2006, his main research was nanoparticles with inkjet and photography. There were 6 (or 40) people in the research group. It was only a small part of the whole company. The research of nanoparticles was not really applied afterwards as Ilford did not see this advancement.
- The collection would be useful even though he has all his notes and he can share his info with the people if they wanted to. For example, organic solar cells stemmed from the nanoscience used for inkjet.
- He expected the discontinuation of Cibachrome. It was sad as it was the best photographic material in the world. Their inkjet product was almost as good as Cibachrome.

- Digital and inkjet much cheaper and it kind of looked the same but he could definitely tell which was which because he worked a lot with these materials.
- He has visited the Marly Innovation Center before as he has worked with the cnc company and 3d printing labs there.
- He thinks the site is fantastic because Fribourg has no other labs like this.
- MIC is no surprise as they have a tech center in Fribourg but it is only comprised of offices and there was a need for labs so it was a natural thing to happen. He was surprised how fast it grew and how many companies came to the site. This has a positive impact on Fribourg as a whole.
- The sponsor/owner of the site is great as he was very active and did a great job with the site so far.
- Ilford worked with HP. It was important as HP coated pretty much everything so it did have an economic impact on Ilford/site.
- HP left Ilford with his patents. Ilford sold the patents to HP (really good coating) and this was one reason why they went bankrupt as they lost 80
- Interest of nanotech (Rolf Steiger CMCN) shows nanoparticles and research. All these applications for solar cells and such and they were all the result of the research he did here in Ilford.
- He has many contacts in US and Europe so he got a lot of info and research into what products/tech are close to come out. Solid info can be found on the internet with publications and such. Human relation/cooperation had such an influence on him as you can get a feeling to what is coming.
- Instant dry inkjet material started from research and developments over the span of 6-8 years. It took about 6-8 years from the development of the first 100 mm coating in research lab and then to huge coating materials.
- He has co worked with several companies still. If you say that you will get a product within two to three years then it will be unrealistic (he will not work with these companies if they say that). There are no such things as having your first ever patent to be successful. You need to do a lot of research and develop a lot of new things in order to get a good final product.
- His research gate has many publications about inkjet and nanoparticles and such. It is very complicated and spread out.
- Nothing works straight out. You try something and it may deviate but you still need to comeback to your main goal. You can always buildup from the previous knowledge. You cannot profit out of your experience if you stay with your deviation instead of just continuing research for the main goal. You may be able to profit for a while but eventually you will not profit at all.



- With Cibachrome he also did nanotech. Silver halo lights are light sensitive crystals. They organized molecules and this is basically working with nanoparticles and nanotech.
- Started with researching macro crystals and then went to microcrystals that are in the Cibachrome material.
- Many things are not published and some publications are not on the internet. That is why many people ask him to talk to share more of his knowledge and research.
- There is an analogy with photography and solar cells.
- Through the research and use of quantum dots and organic sensors, organic solar cells and OLEDs came to be. Pressure sensitive paints (PSP) to see the speed profile using oxygen because the material is sensitive to oxygen.
- One single man is worth nothing as you can not make these new tech without a team and in a team, everyone has their own tasks and have their own specializations and must make it work and respect each other.
- If you start up small then you will not have as much knowledge. 80% of small startups fail within five years in Switzerland.
- A good company to get a job in for research is a big industry that does not care how much money they spend on research.
- He learned about good team cooperation and research through Ciba-Geigy. It is important to have a team of competent people in order to trust that the people are right. Because you have an interdisciplinary group where most people do not know how to do the work of the other, people must seem to know what they are doing in order to trust that that person is right.

#### **G.17 Dieter Wyrsch 8-29-18**

- Description: Previous research director of Ilford
- Worked in research and development. He was the head of the department during 1973-84. He had some relation as a student as he had his professor/mentor visit here.
- Left site in 1984 but stayed with Ciba. Geigy never liked photography. Both started as color producers for textiles, and such but then later grew an interest in photography.
- Telco later left/ended and they only had German people working there.
- Very important part of technology development. Group Photochemie not part of Ciba-Geigy and worked from Basel. They had more freedom in researching. Too many people in Kodak for processing image etc. this part here is the only part for developing.
- Cibachrome gave very stable images better than any other chemical version. They were bleaching dyes. Unsure how long images will last on computer.

- Maybe people will come back to this and see how this was made and maybe continue or build off of this idea.
- Copy dye positives Kodachrome could only look at them on the screen, could not copy it.
- Show the tech in a way that people would understand how it works. The process is not too bad for people to understand as long as you can explain it in a short, simple, and understandable way. Most important aspect is the technologically part for the people to know.
- Matrix had first digital imaging machines before Sony but his bosses did not want to hear about that. His idea is to use microfilms in planes but now that idea is obsolete. Microfilm shows the durability of the dye and quality of the picture.
- Museums having a fixed thing have a short life. Cibachrome Museum not sure if many people would go to see it (maybe it would be a different story if it were online).
- He still lives in Marly ever since the first day he started working here.
- The site contributed to the schools and community. Now there are a lot of schools around, maybe too many to handle.
- It was an episode that may not have been that important but it did have many motivations. Everyone in and around Marly were very proud of the industry that was working there.
- When still with Geigy they had to reduce the number of people working.
- The turnover of the site matched the yearly loss of the site. The site never really made a profit but in 10 years time they did make a lot of money. They were proud of making this photograph product.
- Not sure if people are still proud of Cibachrome.
- They could not foresee the end/collapse of ciba, chemists could not see the tech being overcome. The end was inevitable. Fuji could find a way out.
- He is impressed with MIC as Jean-Marc Métrailler created this and helped reinvigorate the site within Marly. He thought it might be in ruins. Marly will highly benefit from the MIC. The future of the site is very bright. MIC will be very positive for Marly.
- If there is a book about the development of imaging, Cibachrome should be included in at least one of its chapters.
- It would be nice to put this info online for more people to understand and know about it and find the info online.
- One guy said to forget Cibachrome because it was too expensive and just do photo negatives. This guy worked with kodak but this was never an option.
- He is not sad that the industry is gone. He thinks this is how life works. If you are young you will make the difference and, in his time, it made a difference. His colleagues are sad as they had high hopes.

- For a certain time, Ciba did make an impact on Marly, but now not really. The people that work here do not live in Marly anymore.
- There was a shift between languages of French and German but French usually on top.
- The Marly community would pay to transport his kids to the city of Fribourg for school.
- Research in additives was also here in a small department. Another department was not realized here. Thought Basel would be too small but that changed in the early '70s.
- Public very well received Ciba-Geigy. There were no bad movements/protests. When the land was purchased, they did not drive anything out as it was just fields. The only protest they worried about was the language. It was never so strong that it would have an influence on the school. He has no negative memories on the public attitude towards Ciba-Geigy.
- Ciba-Geigy had just bought Ilford and Ciba was way bigger than Ilford. Ciba also made a profit a profit compared to Ilford. Ilford was still very English.
- Could buy any tech there for research when needed. One head of research wanted the company to diversify into imaging. They had four buildings just for research.
- He is not aware of the collection of Cibachrome they have here.