# DESIGNING AN ARCHIVE: RECOMMENDATIONS

# 1 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

# 1.1 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.

#### 1.1.1 Hierarchy

**1.1.1.1 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.

**1.1.1.2 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. 1). 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 1. 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 2 shows part of the organizational schema with categories within the *Documents & Reports* and *Photos & Prints* groups.

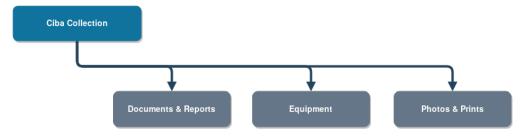


Figure 1: Top Level Collection Hierarchy

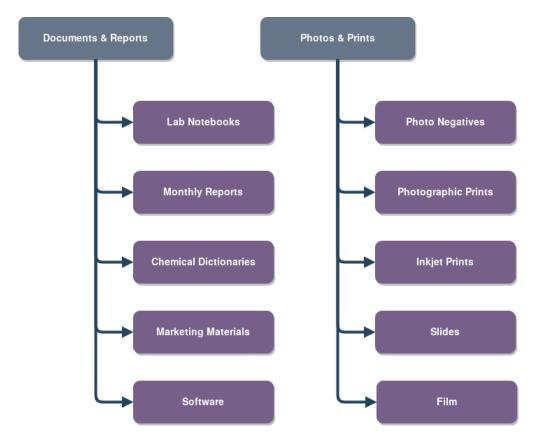


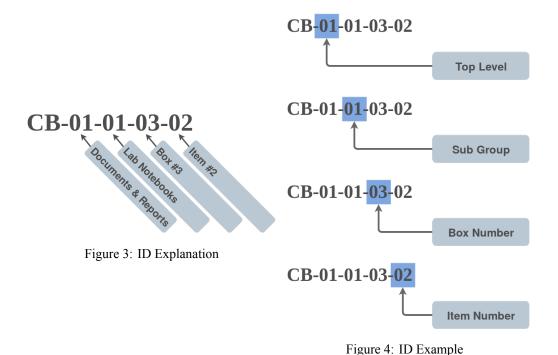
Figure 2: Groups and Subgroups

Notice that in *Documents & Reports*, as shwon in figure 2, 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 2 *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 1.1.4.

**1.1.1.3 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 3 and 4 describe what each portion of the identifier signifies.



Figures 5 and 6 are several examples of documents and their accompanying identifiers.



Figure 5: CB-03-03-04-01 Postcard, Black & White, Woman wearing a hat

This inkjet postcard (Fig. 5), 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.

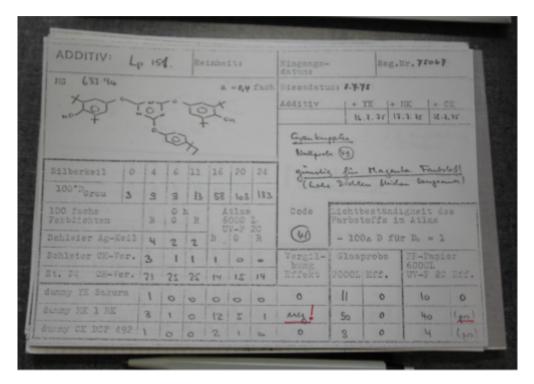


Figure 6: CB-01-03-01 Index Card, Chemical Formula

Following the same system, this index card (Fig. 6), 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.

# 1.1.2 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.

1.1.2.1 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, 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'.

**1.1.2.2 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.

#### 1.1.3 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.

# 1.1.4 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 1.1.1.3, 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 7: 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 7 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.

Inkjet Prints

Box #1 - Assorted Paris Postcards

Box #3 - Black & White Photo Samples

**Box #2 - Patrick Woodroffe Prints** 

Figure 8: 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 8. 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 9 shown below is an example of how a physical box would be identified and labeled.

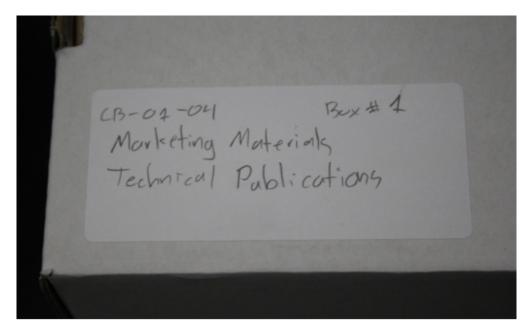


Figure 9: Box #1 in the 'CB-01-04' Group, Marketing Materials and Technical Publications

# 1.2 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.

#### 1.2.1 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.

## 1.2.2 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.

1.2.2.1 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.

1.2.2.2 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.

**1.2.2.3 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.

#### 1.2.3 Digital Archive & Databases

**1.2.3.1 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.

1.2.3.2 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.

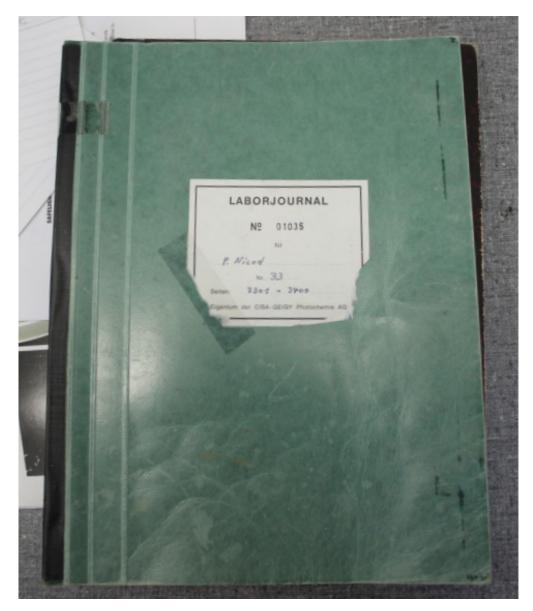


Figure 10: An example of a lab notebook

**1.2.3.3 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.

1.2.3.4 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 11 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	В	С	
1	Item ID	Box	Description	Metadata
2	CB-01-01-01	1	Assorted Lab Notes	Box, Lab Notebooks, Kilchmann, Steinmetz, Field
3	CB-01-01-01	1	Lab Notes Dr Field	N° 000588
4	CB-01-01-01-02	1	Lab Notes Kilchmann	N° 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	N° 01405, Nr. 22, Pages 2201-2300
7				
8	CB-01-01-02	2	Assorted Lab Notes	Box, Lab Notebooks
9	CB-01-01-02-01	2	Lab Notes John Doe	N° 000590
10	CB-01-01-02-02	2	Lab Notes Jane Doe	N° 002245, Nr. 13
11	CB-01-01-02-03	2	Lab Notes Jane Doe	N° 002252, Nr. 14
12	CB-01-01-02-04	2	Lab Notes Jane Doe	N° 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 11: 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 12.



Figure 12: 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.

## 1.3 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.

## 1.3.1 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.

**1.3.1.1** 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.

**1.3.1.2 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.

#### 1.3.2 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.).

## 1.3.3 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.

# 1.4 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.

# 1.4.1 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.

#### 1.4.2 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.

## 1.4.3 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.