



MICROPHOTOGRAPHY IN THE LIBRARY

By EDITH HARTWELL
[Chief Executive Assistant]

The question "What is microphotography?" has been asked us so often in the past few years that we decided this spring to set up a summer exhibit that would answer this question. Our Summer School students were our immediate concern, for many of them come from small towns and rural communities and we hoped to give them, in a general way, a fair idea of this new process which we felt perhaps they had never before met at firsthand. So much interest was shown in the exhibit that the suggestion has been made that a review of it might also prove interesting to readers of the *Chronicle*. In the following description an effort has been made not only to give a list of the items displayed, with explanatory notes, but also to supplement these notes with some account of what this Library is doing "microphotographically."

For any who have not yet become acquainted with microphotography, I would say that the word is very much in use at the present time, figuring in magazine articles, news items, and even in advertisements. Microphotography is used not only by libraries, but also by banks, manufacturing plants, and all kinds of industrial and business houses, in the copying of documents, specifications, plans, and records. There has been a tremendous increase in its use since the beginning of the European war with the air raids and their destruction of industrial centers. The 35 mm. films are easily made with miniature cameras and are easily stored in quite small spaces.

Some commercial houses in our country are having several film copies made of all their records, each copy to be stored in a different part of the country, thus lessening the hazard of complete loss of valuable records in case of untoward events. Many libraries, too, are having their treasures filmed.

The exhibit, of course, deals only with microphotography in relation to libraries. The subject being large and the display space limited, there are but three divisions: *facts relating to its history and development*—bringing out a few important dates; *equipment, emulsions and processing chemicals*—giving a list of cameras and reading machines and showing various kinds of films and methods of procedure; *ways it is used in this Library*—giving specific examples of films and prints.

Under these different headings are arranged books, excerpts from books or periodicals, and other illustrative material. We show neither book rarities nor beautiful and costly bindings; instead, quite ordinary books, and sometimes merely quotations which illustrate the dates we want to emphasize. Throughout the exhibit are small cards on which are hand-printed captions. In Part I these captions are dates significant in the development of the subject.

I Dates and Facts

1871 starts the exhibit with the volume of *Chambers' Journal* for 1887, opened to an article entitled "Winged War Messengers," which gives a vivid description of "The Forerunner of Microphotography," the "Pigeon-post of the Siege of Paris 1870-'71." It says in part: "From November 18, 1870, until January 28, 1871, a pigeon-post existed between London and Tours; and during that period, forty-eight day mails and eleven hundred and eighty-six night mails were thus sent. Communications arriving from the first-named city, and the destination of which it was intended should be Paris,

were despatched from Tours by winged messengers in the manner described; and thus between the dates named was communication effected between the English and French capitals . . . By the aid of micro-photography, the original messages were copied, greatly reduced in size, upon thin films of collodion, each of which contained on an average two thousand five hundred communications; and as one bird could easily carry a dozen of these films, it was therefore possible to forward thirty thousand communications by one pigeon."

After the Pigeon Post there is a lapse of sixty years, for it was not until ten years ago that we find the second outstanding date.

1931 is the year in which the Huntington Library in California sent out its first film reproduction. Mr. L. Bendikson of that library states:¹ "Since that isolated, almost historic occurrence this form of documentary reproduction has developed into a library commodity."

1932 heads a copy of a page from one of the periodical indexes which gives under "Microphotography" merely a cross reference to "Photomicrography." While this same cross reference is also found in some dictionaries, the terms are not now synonymous but diametrically opposite, and the accepted definitions of the two words in the United States at the present time are given on a card in the exhibit: Microphotography—the photographing of large objects on a greatly reduced scale; Photomicrography—the photographing of minute objects as magnified by a microscope attached to a camera.²

Following this definition we show an article by Dr. M. Llewellyn Raney, Director of Libraries, University of Chi-

¹ *Journal of Documentary Reproduction*, 2:189.

² The earliest use of these words recorded in the *New English Dictionary* was in 1858.

cago, one of the outstanding authorities on the subject. It is entitled "Through the Eye of a Needle" and says, in part: "Microphotography, a big word for a small body, has become the talk of the town, and rather suddenly so. It is essentially a development of the present decade, and particularly of the past triennium. Steady periodical reference to it starts with 1936. The first book on the subject appeared late in that year, the second in 1937—both reporting national symposia in America—while the pioneering journal in the subject issued its initial number in March, 1938."³

Our next outstanding date therefore is 1936, the date of publication of the first annual volume *Microphotography for Libraries*. The book is opened to the introduction, where one finds the words: "A generation familiar with carburetors, fuselage and static will now have to hobnob with emulsions and the like or engage a proxy."

1937 shows the second volume of "*Microphotography for Libraries*."

These volumes are followed by a typed copy of a statement by Mr. Keyes D. Metcalf, Librarian of Harvard:⁴ "These 1936 and 1937 volumes . . . and the articles in the *A.L.A. Bulletin* and the *Library Journal*, destroy any excuse librarians may have had for being uninformed on what may well prove to be one of the most important new factors in library development since the invention of printing from movable type five hundred years ago."

1938 shows vol. 1 no. 1 of the first periodical, the *Journal of Documentary Reproduction*, "a quarterly review of the application of photography and allied techniques to library,

³ *Journal of Documentary Reproduction*, 1:233.

⁴ *A.L.A. Bulletin*, January, 1938, p. 59.

museum and archival service.” This journal is published by the American Library Association and edited under its Committee on Photographic Reproduction of Library Materials. It contains articles no one interested in education in general and libraries in particular can afford not to read.

1939 shows announcements for the first courses of instruction in microphotography given simultaneously in Columbia and the University of Chicago summer schools. The writer of this article, while attending the class at Columbia, was extremely interested in the personnel of the class, it seemed so indicative of the wide-spread interest in the subject. There were thirty-one persons enrolled; five were from foreign countries, one each from France, England and Palestine, and two from Canada, and twenty-six from all parts of this country—San Francisco, Seattle, Salt Lake City in the West; Charleston and Durham in the Carolinas; Hanover, N. H., in New England, and various towns and cities in the mid-west and along the eastern seaboard. They were mostly college, state, and public librarians, although there was one Catholic priest, and also a representative from *Time*. The course itself was most interesting, having as instructors Dr. Townsend of the Barnard faculty and Dr. Mary A. Bennett and Miss Dorothy H. Litchfield of the Columbia University Library staff. Both Dr. Bennett and Miss Litchfield were formerly members of our University Library staff.

1941, the last caption for Part I, is followed by the “Reproduction of Materials Code” as published in the *A.L.A. Bulletin* for February, 1941. It is a “statement of policy with regard to the reproduction of library materials,” and deals with non-copyright material, copyright material, and manuscripts.

II Equipment

Necessary "first steps" in the installation of a Department of Microphotography, however small, include the acquisition of the following equipment: a *camera* with copying attachments; an *enlarger* for print making; a *reading machine* on which to use the films; a *film cabinet* in which to keep the films safe from heat and dust.

Printed lists of cameras, lenses, and enlargers are shown.

In this Library we use a Leica camera which is adequate for the present as we do not do extensive copying. Until August of this year we had at our disposal a Leica bought on a Research Grant and deposited in the Library, subject however to call by any faculty member or graduate student doing research work in which microfilming might be helpful. This little camera has travelled extensively in the past few years, for it has been to Europe several times and is at present on its way to Mexico for an eight months' sojourn there. In its absence a personally owned camera has been made available for the continuance of the admirable work done last year by two N. Y. A. students under the supervision of a member of the staff.

A *Valoy* enlarger is used for enlargement prints, and we have the usual processing equipment in our recently installed Dark Room.

A reading machine is without doubt the most necessary piece of equipment; a library doing no copying at all may buy any number of films elsewhere, providing it has the means of reading them. This Library was among the first to realize the importance of reading machines. In 1935 we bought a small Leica projector which holds a short strip of film and throws the image of the printed page on a screen; in 1937 we bought the Optigraph, with the later improvements where-

by the image is read on a glass screen in the same position in which an ordinary book is held. We felt it necessary to have this new machine, for late in 1936 we had ordered from Edwards Bros., of Ann Arbor, Michigan, the films familiarly known as "The S.T.C. Project," reproducing all books printed in England before 1560. This project is still in progress and we have received to date about 1800 titles. January 1, 1939 we discontinued our subscription to the bound volumes of the *New York Times* and substituted the film edition. This necessitated the purchase of an additional reading machine for newspaper use and the Recordak was bought for this purpose. Since then we have added four other newspapers on film—The *Philadelphia Inquirer*, The *Manchester Guardian*, *Le Temps* and *Völkischer Beobachter*, and to make these easily available we have recently acquired a Model C Recordak. These reading machines are in the Periodical Room adjacent to the exhibition cases and may be examined at any time. Other reading machines are listed in the exhibit case as follows:

1. The *Students Microfilm Reader* manufactured by the Spencer Lens Company and sponsored by the American Council of Learned Societies.
2. The *Microfilm Reader* sponsored by the Society for Visual Education.
3. The *Micro-news Reader* manufactured by the Graphic Service Corporation.
4. The *Argus Reading Machine* (no longer on the market).

Two film *storage cabinets* are pictured; one made by Globe-Wernicke Company and the other by Remington-Rand. We have recently ordered one of the Globe-Wernicke cabinets. The proper housing of films is necessary to preserve them. An even degree of temperature and of humidity should be

maintained, or there is danger of film deterioration caused by their becoming too dry or brittle. Experts claim that films properly housed will last at least as long as good quality paper.

Emulsions and Processing Chemicals. These items fill three cases in the exhibit, and while they show the ordinary steps in the development and printing of any film, the tank, chemicals, etc., they also give a specific adaptation to microphotography. They show the five kinds of film emulsions used in our copying work: first the undeveloped films in their containers, and then the same films after exposure and development, several pages of a sixteenth-century book having been photographed on four films to demonstrate the varying results obtained by the use of different emulsions. We show also the 2" x 2" slide-making processes, and last of all the enlargement prints of the films of the sixteenth-century book.

A liberal use of bright red ribbon markers, together with red and yellow filters, trays of chemicals, shiny tin containers, and Kodachrome slides, make this quite a colorful corner of the otherwise black and white exhibit. These three cases were entirely set up by one of the N. Y. A. student assistants.

III Use Of Microphotography In This Library

In this part of the exhibit four large cases are filled, giving captions and illustrative material as follows:

1 *To get material otherwise unobtainable.*

a. A film of an old manuscript bought from the British Museum, Petrarch's "Sonetos," translated by Francisco Trenado de Ayallón, 1595.

b. A film of the S.T.C. Project. This one film contains seventeen books printed in England before 1560.

2 *To lessen the handling of precious originals.*

a. *Poor Richard* almanac for 1757 and the film containing *Poor Richard* almanacs 1733-1766.

b. Durang's *History of the Philadelphia Stage* Vol. I. (One folio volume from the seven-volume set.) As this is the only interleaved, illustrated set of Durang in existence, we have had both negative and positive films. The films were made by a commercial firm and contain over 3000 frames.

3 *To replace badly worn copies.*

a. A brittle, 1774 edition of William Richardson's *Philosophical analysis and illustration of some of Shakespeare's remarkable characters*.

b. The film of this book made in this Library.

4 *To make easily available widely scattered material.*

a. We made a film of C. L. Brigham's *Bibliography of American newspapers 1690-1820*, which appeared in eight different volumes of the *Proceedings* of the American Antiquarian Society.

5 *To inventory exhibitions.*

a. Part I of the Bicentennial exhibition of the Library.

b. University of Pennsylvania Milestones exhibit for freshmen.

c. The Grolier Club's "Exhibit illustrating the history of music printing."

6 *To save space.*

a. The huge bound volume of the *Philadelphia Inquirer* for January 1940.

b. Two cartons each 3¾" square containing films of the same volume.

7 *To guard against loss.*

a. Our only complete, interleaved, closely annotated copy of the Dewey Decimal classification, used in our Cataloguing Department.

b. A film of the same made in this Library.

8 *To lessen the cost of Doctoral Dissertations.*

a. Catalogue of the Graduate School stating the new regulations in regard to the publication of doctoral dissertations.

b. Two films of doctoral dissertations submitted this year. Of the six submitted on film, one was by a Chinese student.

9 *To take the place of volumes too rare to send on inter-library loan.*

a. Enlargement print of a title page of a play by Lope de Vega.

b. Film of a Franklin imprint. *A catalogue of choice and valuable books*, 1744.

10 *To instruct Freshmen in the use of the library.*

a. Slides of various desks, title-pages of reference books, catalogue cards, call slips, etc.

b. Projector for showing slides. Once a year when the freshmen come to the library for instruction these slides are thrown on a screen while the various department heads explain the periodical indexes, the use of the catalogue, and the method of borrowing books from different desks.

11 *To assist Faculty and Graduate Students.*

a. 2" x 2" slides for lecture use were made for a professor.

b. Prints made for a graduate student from a film of an entire sixteenth-century book.

c. Prints made for a professor for proof-correction of a book being printed in England; a microfilm of the original manuscript having been made elsewhere before it was sent abroad.

d. An illustration from a seventeenth-century periodical was filmed and an enlargement made for a graduate student. Original illustration—film and print—are shown.

e. Several leaves of one of our Sanskrit manuscripts, supposedly anonymous, were filmed for a scholar in India who thinks he may be able to identify the author.