

Microfilm

Microfilm will be: "one of the most important developments in the transmission of the printed word since Gutenberg." (Fred Kilgour, "Typography in celluloid." *Christian Science Monitor Magazine*. September 14, 1940, p. 8).

Not only did hypertext not invent text, it didn't even invent hype.

What microfilm does for us is to provide compact, permanent, and cheaply duplicated versions of brittle or fading materials.

It does not help with searching or access from home, and microfilm is often considered inconvenient and hard to read.

Origins of microfilm

Microphotography was invented by John Dancer, a British optician, in 1853. He tried to sell his microphotographs, 160X reduction, but they were basically curiosities (the Lord's Prayer on a pinhead, pictures of Queen Victoria's family, and so on).

In 1860 a Frenchman, Ren Dagnon, patented microphotography; his methods were actually used to communicate with Paris during the siege of the Franco-Prussian War (1870), using carrier pigeons to get the films back and forth.

In 1925 George McCarthy, a banker, invented a camera for use in microfilming checks.

An Idea Whose Time Has Passed

1943: National Microfilm Association

1969: National Micrographics Association

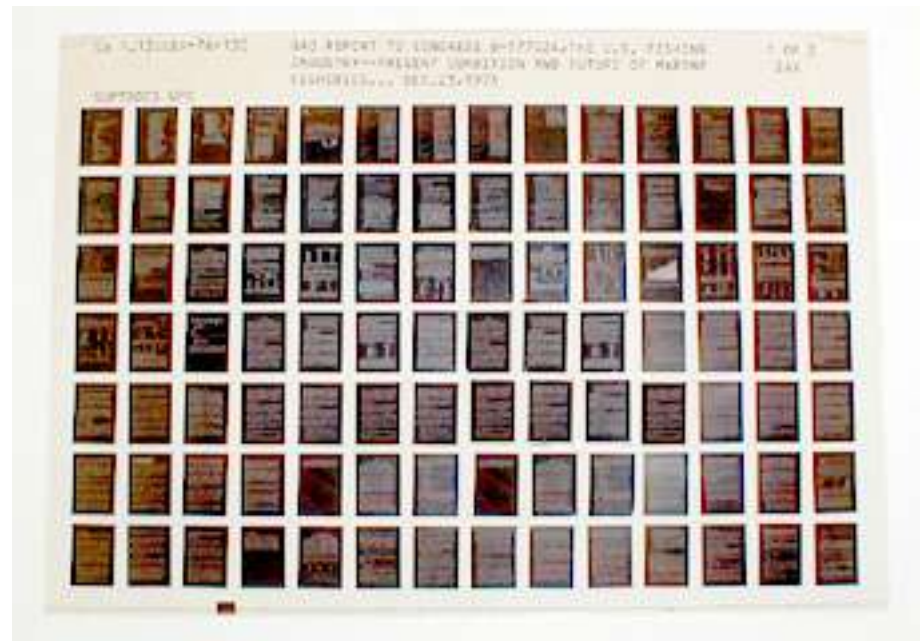
1983: Association for Information and Image Management

Now becoming the Enterprise Content Management Association.

Essentially everyone who was making film is now scanning. And many people who were never doing microfilm for sales are selling images online or on recordable optical disks (CD or DVD).

Microforms

Roll microfilm and microfiche are the most common formats, although there are also microprint and aperture cards. Normally one starts by making roll film and then generating fiche from that.



Reduction ratios

This can range from 8X to 48X in common use. Fiche are typically made at 24X reduction ratio, with 7 rows of 14 page images. Film is typically shot at 12X (although 8X and 16X are also used).

Library film is generally 35mm. The commercial industry, however, has largely shifted to 16mm film and 24X reduction, and libraries which still buy microfilm journals often will find this format.

Note that film is much better now than in the 1940s; a 16mm film today has more resolution than a 35mm film when the standard was laid down. Nevertheless, the standard hasn't changed.

Cameras and resolution

Years ago, Kodak microfilming equipment was standard in the US. However, Kodak no longer makes a 35mm microfilming camera; libraries either use old equipment or use German (Herrmann & Kraemer) cameras. The resolution of cameras and film is enormous, although be careful about whether the quoted resolution is on the film or on the original. 4,000 dots per inch on the film, with 12X reduction, is some 300 dpi on the original printed page. If you are reducing a full-size newspaper page of 17x22 to 35mm, that implies a reduction ratio of at least 16X, and 4,000 dpi on the film is 250 dpi.

Film

Most microfilming is done with high contrast film. That means that photographs do not reproduce well. Recently both continuous-tone (greyscale) film processing and color film have become available as well.

Black and white silver halide film (the normal stuff) is believed to be good for 500 years. There are cheaper processes sometimes employed for making "use copies" but the master should always be made on traditional silver film.

Microform scanning

Companies such as Sunrise, Mekel, Kodak and Minolta make microfilm scanners. They are fast but they cost \$20K or more.



Kodak, left; Mekel, center;
Sunrise, right. You can scan at
seconds per frame and there are
machines that scan fiche as well
as 16mm and 35mm film.

Newspapers

The Library of Congress and the National Endowment for the Humanities have been working for decades on microfilming newspapers. Some 60 million pages of newspapers have been filmed under this program; many other pages have been filmed by libraries working on their own (or produced directly by the newspapers which sell a microfilm edition to libraries).

The focus has been on national coverage: every single state has had some titles filmed.

This program is winding down and a digitizing program is being initiated.

Politics

It doesn't make sense to microfilm the same item more than once; microfilm is easy to copy. Thus, microfilming projects normally involve picking a few large libraries and doing long runs of items from their collections. This means that smaller libraries don't actually get any activity or attention; they just get the opportunity to buy the final microfilm when it is published.

By contrast, deacidification money gets spread around; everybody does a few books.

Thus, sometimes it's hard to get political support for filming; and the same economics and result apply to digitization as well.

ProQuest - UMI

For decades, UMI (which used to be University Microfilms, and is now owned by ProQuest, which used to be named Bell & Howell) has been filming dissertations, out of print books, and other resources.

It now claims to have 5.5 billion page images.

It has many of them in digital form; microfilm is easier to scan than paper.

How much total microfilm is there?

Some website called the "Heritage Health Index" (affiliated with IMLS, in fairness) claims that there are 1 billion microfilms and microfiche in the United States. Of course, this is counting the same item multiple times. They apparently sent a survey to 5,400 libraries (and many other kinds of institutions).

Is there a future for microfilm?

Some people push a “hybrid” approach: microfilm for preservation and digital for access.

You can either film first: it is cheaper to scan film than paper – or you can scan first and generate the film from computer output.

Scanning first is winning since it means that the image you show people is higher quality.

Other people keep on with microfilm because they have a big investment in it; they may have been microfilming their court or bank records for decades.

But this is all pretty thin.

Can you legally scan microfilm?

Good question. All the commercial microfilm suppliers (such as Research Publications, UMI, Chadwyck-Healey, ...) put copyright notices on their stuff and insist that they have rights in it. Yet it is hard to understand how such a copyright claim could hold if the underlying material is out of copyright. Under the U. S. rules that copyright requires a creative act, just photographing a flat object to make a good reproduction doesn't qualify (see the court decision in *Corel v. Bridgman Art Library*). There would be a compilation copyright if you duplicated the arrangement of items.

I know of no court case deciding whether scanning microfilm of public domain material needs permission.

If the original material is in copyright and for sale (e.g. *The New York Times* from 1923-date) then you clearly can't scan it.

Summary

New microfilming projects are scarce and getting scarcer.

Digitization is nearly always going to be a better choice, because of the additional searching options.

Expect that microfilm equipment will become harder and harder to buy and repair.

If your library is dependent on microfilmed collections, you might want to think of starting a long-range plan for alternatives.

The best thing to do is probably to talk to other people in the same situation and try to cooperate.