

# The Case *for* Microfilming

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JERRY McDonald's article entitled "The Case Against Microfilming"<sup>2</sup> might better have been called "The Case Against the Misuse of Microfilming." The present article aims to show certain human failures in microfilming that can lead to hasty conclusions such as Miss McDonald's and to explain how these failures can be prevented. Some of Miss McDonald's criticisms are, of course, justified. Microfilming *has* been oversold, and the overselling *has* been harmful. Microfilming is a useful tool, but it is not the answer to every record problem.

Users of microfilm equipment should be given more information about the uses and limitations of microfilm so that they can avoid the costly errors that often result from inexperience in this relatively new field. Many problems, to be sure, will arise in filming particular types of records that the manufacturers, suppliers, salesmen, camera operators, and even microfilm "experts" can hardly be expected to anticipate. On the other hand, there are many pitfalls about which a customer can be warned in advance.

One of the most useful publications in the field of microfilming is the Department of the Army's Technical Manual no. TM-12-257, *Microfilming of Records*, available from the Superintendent of Documents, Washington, D. C., for 50 cents. Although this manual covers, for the most part, the use of specific microfilming equipment and the problems peculiar to that equipment, it includes two appendixes that are of tremendous value to users of the type of equipment discussed and that are of general interest to all users of microfilming equipment and services. Appendix 1, "Camera Operator's Guide," includes a "Trouble Chart" designed to enable the

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A joint committee of the Western Electric Co. and the Bell Telephone Laboratories is now studying the applicability of precision microfilming to the reproduction of engineering papers.

<sup>2</sup> *American Archivist*, 20: 345-356 (Oct. 1957).

camera operator to determine the probable cause of certain mechanical difficulties and gives detailed instructions how, in some cases, simple corrective action can be taken by the camera operator. Appendix 2, "Film Inspection Guide," describes and illustrates the defects to be looked for in the inspection of processed film, identifies their probable causes, and prescribes remedies. Also extremely valuable is the standard nomenclature, which should be used in explaining machine difficulties and film defects to suppliers' repair-service organizations.

Everybody involved in a microfilming operation would benefit from wider dissemination of information of this kind. Instruction manuals containing such information should be prepared and distributed by suppliers to all users of their equipment. Prepared by or for a particular user, such a manual is not generally available to others except as a special courtesy.

Constant electrical voltage is essential for high-quality microfilm copies — a fact that the writer learned only through experience. But the difficulties that arise from fluctuating voltage can be eliminated by setting up the microfilm equipment in a permanent location served by a separate electrical line or by installing constant-voltage transformers on camera equipment that must be moved from place to place.

The making of paper copies from microfilm in the event of a major catastrophe such as an atomic bomb attack would be, as Miss McDonald points out, a real problem, especially for companies that cannot afford to have their own reproducing equipment. In this case it is probably true that the advantages of microfilm for protection against bomb damage have been overemphasized and that this has generated too great an enthusiasm for microfilm as a means of duplicating business records for protection. How paper reproductions are to be obtained quickly from microfilm if there is widespread destruction of originals has not been much discussed, probably for the reason that until very recently processes now known were not developed. In considering microfilming for security, the business or industrial client should ask: Who will make the reproductions from the microfilm, in an emergency? How long will it take to reproduce in paper form the records that our company will need? How much will it cost? What will be our position of "priority" for such reproduction?

On the other hand, it must be admitted that a microfilm copy is better than no copy at all. It is a relatively inexpensive form of insurance, the film is available for reference, and the original records can be reconstructed from the film. Such reconstruction may not be

easy; it may take a long time; it will be expensive. But the information is there and can be extracted eventually from the film.

Most of the other criticisms made by Miss McDonald in her article are unjustified. For instance, her statement on the legal status of microfilm, "If you encounter . . . [a judge] who has had a bad experience with film, he may reject it as primary evidence," is misleading. It would have been more accurate to add, "in which case, a foundation would have to be laid for introducing the film copy or a reproduction made from it as secondary evidence if the original records had been destroyed."

In most of the cases of failure of a microfilm project cited by Miss McDonald, it seems to me that the client rather than microfilm was at fault. It is not fair to build a case against microfilming by using illustrations that clearly indicate that the customer misused the microfilm process. Companies that have "stopped filming because of the loss of detail in both taking the film and reproducing it afterwards" should have made sure that they were able to get legible microfilm and legible reproductions from the microfilm before embarking on a large-scale project. Misuse of microfilming with the expectation that it is going to perform miracles and pick up details that are obscure on the original records is not a "case against microfilming," but rather a reflection on the judgment of the people who selected a medium that was not adapted to the needs of their companies or the quality of their records. Abandoning microfilming because it is not adapted to a specific group of records is like giving up all ice cream because you can't stand pistachio flavor.

The reference to microfilm copies in an engineering group raises again the question whether the records involved actually lend themselves to retention on microfilm only. Indiscriminate microfilming is always a mistake. No records should be microfilmed with the idea that microfilm copies will be used in lieu of the originals unless it has been ascertained that the film copies will be convenient for the kind of reference to which the records are normally subjected. Obviously a set of records to be used by a group of engineers who find it necessary to see and compare a dozen drawings at the same time should be retained in original paper form. This again, however, is not a case against microfilming, but a case against the *misuse* of it.

Most original drawings (tracings) are customarily filed apart from their supporting papers. But if reference copies of drawings are filed with supporting papers for convenient reference, then such drawings should not be segregated for microfilming by themselves. If reference to records filmed after such segregation is inconvenient,

this should not be counted as a disadvantage of the microfilming process. Before any records are microfilmed, the way in which the film copies are to be used must be carefully considered.

The "irate chief engineer," whose drawings included significant colors that did not show up on microfilm, should have directed his wrath not against microfilm but rather against the people responsible for setting up the microfilming program. The job should not have been started until the significance of the colors had been established and provided for. This is elementary in a microfilming project.

The company that balked at the cost of a microfilm reader was straining at a gnat after swallowing a camel. It does seem that a company that is able to spend money to have records microfilmed by an outside concern should be able to afford a reader, which costs around \$500 to \$750. There are, however, less expensive readers available, which are entirely adequate for normal use with records up to legal size. If a man who hires a secretary balks at buying a typewriter for her to use, is this a case against having a secretary?

Other illustrations appear to show that the customer in question mismanaged his microfilm project. The case made is against poor managers rather than against microfilming. As to the danger of putting film in the wrong box after reference, since when have engineers become file clerks? Why shouldn't the file department be responsible for finding the filmed records for users and refiling them after such use?

Adequate labeling should be provided in any case. No microfilm service organization (whether within or outside the company whose records are affected) is doing a good job if it does not take the following precautions:

1. Photograph a reel number (which will be legible without magnification) at the beginning and the end of each roll of film;
2. Scratch or mark the reel number on the spool on which the film is wound;
3. Scratch or mark the reel number on the can in which the spool is stored; and
4. Mark the reel number on the carton in which the roll or can is stored.

People who do not require their files — whether paper or microfilm — to be properly labeled are asking for trouble; and those who do not set up proper safeguards to ensure that files properly labeled are kept in good order should not be entrusted with the supervision or handling of company records in any form.

Users of microfilm should be subject to the same rules as those who use paper records, and the same kind of control should be exercised to ensure that the rules are observed. Don't blame the micro-

film because an absent-minded employee (who shouldn't be doing filing in the first place) puts it into the wrong carton. This is the same person who will put a letter into the wrong folder and put a folder into the wrong file drawer and put a binder on the wrong shelf.

The argument that records in constant use can't be released for microfilming is specious. When it is decided that microfilming is the quickest and least expensive method of duplicating records in constant use so that the microfilm copies can be stored at another location for protection, some way can always be found to release them for the relatively short time required for the microfilming operation. If microfilming is rejected, how does Miss McDonald suggest that the records are to be protected? A file of rate cards, for instance, of which only one copy exists? Is there any other duplicating method that would be easier, quicker, or less expensive? Is there any other duplicating method that would make it unnecessary for organizations using the records to release them for the time it takes to duplicate them?

Filming the reverse sides of documents is a most interesting subject, to which an entire article could be devoted. Such filming can indeed be time-consuming if the camera equipment in use is not adapted to the kind of records being filmed. This takes us back to the need for more helpful and informative sales and instruction booklets and more extensive preliminary investigation by the prospective client. The most modern, streamlined equipment, designed to photograph both sides of a document simultaneously, may prove to be less than ideal when the filming jobs to be handled are complicated — when different kinds of records are to be filmed, some large and others small, some on thick paper and others on thin, some with writing on one side only and others with writing on both sides, some with two sides designed for book-turn and others designed for tumble-turn.

The changes and adjustments that are necessary to photograph records of different reflective qualities, on different colored paper with different colored inks, and so forth, should prevent the camera operator from becoming bored, instead of inducing boredom, as Miss McDonald suggests. Not all such differences require adjustment of the camera on all kinds of microfilming work. There are many types of records microfilmed for protection that contain colors having no significance whatever or that are on colored paper for which only a single camera adjustment has to be made at the beginning of the job. Any such adjustments should add an element of interest to the work.

If, because of boredom, the operator speeds up (an unlikely result if I know my psychology) and produces poor copy, this is not a case against microfilming but a case against an incompetent, uninterested, or ill trained and inadequately supervised employee. A well trained and properly supervised microfilm operator *expects* such complications and irritations. He does not become bored by them; he considers them all part of the day's work. It takes time and thought to instill such an attitude in a microfilm operator; but of course, unless this is done, the microfilming program will not be successful. The same can be said of any other job in shop or office.

Miss McDonald's arguments with respect to the inspection of processed film are but a house of cards built on a nonexistent foundation. Let us consider them one at a time: "After being filmed, the files are generally stacked away rather haphazardly to await the return of the film." To me this suggests poor management and untidy housekeeping rather than a case against microfilming. In a well managed microfilm service organization the records that have been microfilmed are maintained in their original order and are carefully set aside for quick, convenient reference should inspection of the processed film indicate the need for retakes or other corrective action. Another remark: "When it [the film] arrives, it must be inspected by a competent official of the firm." Here we see mismanagement in another form — not a case against microfilming. Now we send the president out to buy paper clips instead of leaving the job to the employee who was hired to do it. Do "competent officials" proofread the work done by typists and stenographers? Do they refigure reports completed by calculating machine operators?

Depending on the extent of the microfilming activity, processed film should be inspected by (a) the camera operator, with occasional spot checks by his supervisor, (b) the supervisor immediately responsible for the microfilming operation, or (c) a microfilm inspector, in a large microfilming group. A fast non sequitur follows: "This close, thorough scrutiny is very important, very slow, and very boring so that eventually the inspection receives progressively less attention until it is neglected entirely or turned over to some junior clerk." A strange way for a "competent official" to handle a "very important" piece of work! Actually, the inspection of processed microfilm is too important to be entrusted to a "competent official" (whether he becomes bored by it or not) or to be turned over to "some junior clerk." Such treatment is unfair to the film, unfair to the official, unfair to the junior clerk, and most un-



fair of all to the people in the organization who are responsible for handling the details of the microfilming job.

The inspection of processed film should properly be as close as possible to the actual microfilming operation (whether the photographing is done on the company's premises or outside, by the company's personnel or by another firm under contract). Inspection is, in fact, inseparable from the filming process. Processed microfilm should be inspected by employees who are familiar with the problems involved in the handling of records and the microfilming equipment. Such employees should be trained to look for and recognize faults, to analyze them and determine their cause, to know what remedial action should be taken and by whom so that similar faults will not appear on future jobs. There are probably more than a hundred different kinds of faults, any of which might show up on a roll of processed microfilm — due to camera trouble, film defects, careless processing, reader defects, operator error, defects in the original records, or other causes.

Inspection of this sort can be very interesting and a source of continual education to the personnel in the microfilming group and can have great future value from the standpoint of improving the condition of the original records, the quality of the microfilm images, and the speed and ease of handling the entire microfilming project. We all probably, at one time or another, make the mistake of thinking that because a thing bores us it bores everybody. This is not true. Regardless of how dull an activity may appear to be from a distance, or to someone who knows little or nothing about it, it can become intensely interesting when it is explored in depth.

Miss McDonald's tale of mismanagement (which she calls "a case against microfilming") ends on a sad note: "The result is that many companies aren't in a position to state positively that they have honest, legible copies of their records." Companies that have set up microfilming programs *should* be able to state positively whether or not they have honest, legible film copies. They should also be able to state positively whether they are going to be able to get honest, legible paper facsimile reproductions from the microfilm if such copies are needed. Unless they are assured on these points, they will be simply wasting their time and money on a microfilming project.

As for the cost of retakes, Miss McDonald asks us to "consider the experience of one Los Angeles financial firm that filmed 2,300,000 documents and carefully inspected the finished product. As a result they had to find and retake 35,000 documents. The finding and retaking cost more than the original run." The same thing

happened in New York City. In such cases, blame people, not microfilm. If, from the beginning of the project, a close watch had been kept on the quality of the completed film, if each reel of completed microfilm had been carefully inspected immediately after processing, if the faults had been analyzed in detail to determine their cause, if remedial action had been taken during the course of the job — the staggering number of retakes would have been unnecessary.

Where was everybody while all these errors were being made? We can assume that the retakes involved microfilming errors rather than faulty original records because the article indicates that the records in Los Angeles had to be found and rephotographed, and the New York City job also involved finding and refilming the documents involved. It is simply not good business practice for a concern to enter into any project costing thousands (or hundreds of thousands) of dollars without setting up an effective procedure to ensure, on a day-to-day basis, the quality of the service that is being rendered.

"Some people distrust microfilm." Yes, and some people distrust central files and centralized record storage. They may or may not have good reason for their feeling, but distrust of microfilm copies does not constitute a case against microfilming. It is related instead to the fact that a service performed in a quiet, efficient manner by cheerful, properly trained, adequately supervised employees who are interested in their work will inspire confidence, whereas a poorly managed service will inspire distrust. It makes no difference whether we're talking about microfilming or haircutting. Any microfilm project is foredoomed to failure if it labors under the disadvantages of inadequate supervision, untrained personnel, users of film copies who do not know the "ground rules," and organizations made responsible for records to be microfilmed but not required to follow definite procedures in handling them.

As for microfilming costs, it is true that under certain circumstances the cost of microfilming a given set of records may equal the cost of storing them in original form for 70 years, as Miss McDonald says in relating the experiences of some companies. It is also true that under other conditions the cost of microfilming the same records or different records of the same company may be no more than the cost of storing them in original form for 10 years. So many factors enter into the computation of such costs that the mere statement of a conclusion has no meaning unless all of the conditions are known.

Many people are overwhelmed at the thought of "preparing" records for microfilming; that is, putting them in correct order;



removing clips, staples, pins, or other fasteners; and mending torn papers. Whether the cost of such operations should be charged against the cost of microfilming or whether it should be considered a natural consequence of previous filing indiscretions is something that each organization must decide for itself. *Of course* it takes time to assemble records for microfilming. In many cases the persons responsible for maintaining the records to be filmed can be instructed in advance how to prepare them so that such annoying steps as the removal of fasteners and the mending of torn sheets can be eliminated or reduced to a minimum at the time of microfilming. Small sets of papers stapled together or cards fastened with linen hinges can be microfilmed on some machines without removing the fasteners.

As to colors, only those that have special significance require color coding. Originators of records that are to be microfilmed should be advised to eliminate the use of color wherever possible and to substitute symbols, such as brackets, for red ink as a means of distinguishing negative figures.

Files should be maintained in proper order at all times whether they are to be microfilmed or not. Torn papers should be mended at the time the damage occurs, and the cost of such mending at the time of microfilming is not a proper microfilming cost. Whether the removal of fasteners, clips, and pins constitutes a legitimate expense to be charged to microfilming or whether most of the fasteners should have been removed at the time the records were originally filed is a matter that must be determined by the organization involved.

Some of the factors that affect microfilming costs are the following:

1. The kind of records involved.
2. Their purpose.
3. The kind of reference made to them.
4. The frequency of reference.
5. The persons who use them.
6. The size of the individual papers.  
Are they of uniform or variable size? Is the variation frequent or occasional?
7. The thickness of the individual cards or papers.  
Are they of uniform or variable thickness? Is the variation frequent or occasional?
8. The volume of the records.
9. The way in which the writing stands on the page.  
Is it parallel with the short dimension or the long dimension, in a uniform or variable direction, with frequent or occasional variations?

10. The number of sides to be photographed.  
Is there an intermingling of one-sided and two-sided papers? Is the change from one-side to two-side work frequent within a given lot? Is it easy to determine from the appearance of the first side or in some other manner whether the reverse side must be filmed, or must the operator look at both sides to be sure?
11. The kind of folders, binders, or fasteners used.
12. The thickness of the folders, binders, and papers.
13. The condition of the original records.  
Are they clear and legible? Are there many fasteners (staples, pins, or paper clips)? Are the sheets folded or curled at the edges? Are significant colors used or is the paper of different colors? Are flyers pasted or stapled to the papers covering significant data?
14. The kind of microfilming equipment indicated.
15. The terms on which the equipment will be procured.  
Will the equipment be purchased or rented?
16. The kind of film to be used.
17. The method of microfilming:  
Standard (one document across the width of the film).  
Duo (up one side of the film and down the other).  
Duplex (backs and fronts filmed simultaneously).
18. The reduction ratio to be used.
19. The method of feeding — automatic or by hand.
20. The grade of the product required.  
Not all records call for the same quality of product.
21. The grade, salary, and responsibilities of the camera operator.
22. The amount and nature of the supervision.
23. The kind of indexing required.  
Some records are almost self-indexing.
24. The kind of inspection to be given the processed film.
25. The manner in which corrections and other retakes are to be made.  
Comparable factors must be considered in judging the cost of storing records in their original form.

It is a good thing to find out what others have to say for or against a new process and to talk over our problems with those engaged in similar activities. But in the case of microfilming few generalizations can be made, few conclusions can be reached, on the basis of another company's experience. Each company and each organization within a company must decide for itself, first, whether records requiring extraordinary protection should be duplicated on microfilm or whether protection should be provided in some other manner; and, second, what savings, if any, can be realized by retaining long-term records on microfilm and destroying the originals and where the dividing line is in cost (for each type of record) between retention on microfilm and retention in the original form.