

California's Microfilm Program for Vital Statistics Records

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THE BUREAU of records and statistics of the California State Department of Public Health as a part of its functions directs the statewide registration of births, deaths, and marriages and provides service to the department and to the public with respect to these records.

The statewide registration of vital events began July 1, 1905, and in the 54 years since, more than 14½ million records have been registered with the department. Approximately 600,000 additional records will be registered during 1960. Two serious problems developed: we were being crowded out of our office by the sheer volume of records, and the older records which received greater use began to wear out.

An examination of these two problems, begun in 1947, developed into a survey by the department and the management analysis section of the State department of finance (1,2).

Mr. Shipley has been chief, bureau of records and statistics, California State Department of Public Health, during the 10½ years when the system described in the paper was developed. Mr. Fuller is administrative analyst with the California State Department of Finance and was formerly associate public health analyst in charge of the vital records section of the bureau.

Mr. Shipley presented "California's Microfilm Program" before the methodology working group at the seventh national meeting of the Public Health Conference on Records and Statistics held in Washington, D.C., March 24-28, 1958. The methodology working group voted unanimously to publish his report. The paper is, in substance, based on Methodology Bulletin No. 8 of the Public Health Conference on Records and Statistics.

Assistance was also requested and received from many different sources.

Several possible solutions were explored. The traditional solution to crowding is to provide more space for storage and continue the accumulation of paper records. This practice was judged to be wasteful and shortsighted and in no way contributed to a solution of the second problem.

Review of the second difficulty, records wearing out from prolonged use, indicated that some substitute was needed for the original record. The use of microfilm, in lieu of the original record, appeared to have some advantages; it was a well-developed product enjoying wide use and acceptance, and it was relatively inexpensive. Further research revealed that under satisfactory storage conditions it was long lived. Microfilm appeared to be a possible solution to both problems.

A first important step was taken in 1948-49, when considerable effort was expended in the rehabilitation and transfer of all certificates to better filing equipment, in which the certificates are not bound. A State file number was stamped on all certificates. This number became an integral part of the indexing system, which is necessary to locate records or corresponding microfilm. The State file number is assigned as a consecutive serial number, 000001 through "n," for each type of record within each year of occurrence of event. The two digits representing the year of event are a part of the State file number and precede the six-digit serial number.

Several questions remained to be decided about the use of microfilm. What size film would be used? What reduction ratio was

most desirable? What kinds of equipment were most suitable? As answers were found for these questions, new ones were asked. The exploration of the possibility of using microfilm as a substitute for original records developed into a number of related studies.

Certificate References

Our two basic requirements for any solution using microfilm as a working record were ability of the film system to accommodate amendments at any time (3) and adaptability to production of photographic copies of the record from the film at all times. These two requirements limited the solutions which would be acceptable.

To understand better the first requirement it was necessary to measure amendments quantitatively. A certificate reference study (4) was undertaken for a 1-year period in which annual reference rates were established per 1,000 certificates by type and age of certificate. In the analysis of the rates, particular attention was given to the references made for the purpose of amending certificates. There was a relatively high activity of certificate references for a relatively short time after filing of the certificates for marriages and deaths and a high reference activity over a much longer period for certificates of live birth.

Since a substantial part of this high reference rate was due to amendments to the records, it became apparent that considerable expense could be avoided in splicing the microfilms by instituting what we call a minimum lag period of 15 years for births and 5 years for marriages and deaths before the permanent microfilm security copy and noncurrent working copy were prepared.

During this lag period, the current processing copy of the film, which is used as a processing medium, is placed in security storage within a few months after the certificates are registered and is retained until it is replaced with the permanent security copy which is prepared at the end of the lag period.

Film Systems and Amendments

We investigated the relative advantages of roll microfilm and microfilm card filing systems

in which a film image or images are inserted in a card which is then filed vertically in conventional card filing equipment. The latter system was rejected in favor of the former on two counts: the total cost of installing and maintaining a system for using microfilm filed in card form was much higher than for a roll form system, and the saving in storage space is greater when the roll system is used. Furthermore, we could find no real advantage to the card system except that it is a widely understood concept, whereas "rolls of records" is not.

These records are subject to amendment at any time. The amendment is, in fact, an accessory document. After amendment the record then becomes a two-document record. These accessory documents must be added to the rolls of film. The simplest and most economical method is to microfilm the amendments and splice them into the microfilm roll preceding the pertinent film image.

Splicing, Editing, and Reading

There are two basic methods of film splicing, lap-weld and butt-weld. The former is the conventional splice system, in which the ends to be spliced are trimmed, buffed, coated with cement, overlaid, and held together for a short time to allow the cement to dry. The butt-weld system trims the ends to be joined, brings them together so that the ends join perfectly (but do not overlap), then welds the ends together by applying heat for a brief interval at the point of contact of the two film ends. No cement is used. It was decided to use the butt-weld splice since it is much stronger and faster than the lap-weld splice.

No machine existed for editing nonsprocketed roll microfilm, yet it is a virtual necessity if the film is to be amended. We contrived our editing device by converting a commercially available editor made for sprocketed 16-mm. cinefilm.

We found many brands and styles of microfilm readers. Most were rather primitive by today's standards and were poorly designed in that little consideration had been given to wear and tear of film on its travels through the reader. The choice was finally narrowed to one reader. Several accelerated wear and tear tests

were done with this reader in an attempt to simulate the conditions which we expected our microfilm to survive. After several months it was concluded that attempts to reduce the wear caused by the reader were misguided; the film itself would not stand the usage we expected of it. At this point we became aware of recent developments in diazo-type film which, in essence, solved wear and tear.

Duplicates and Enlargements

The diazo film duplicate is necessary whenever the microfilm becomes an active working record. The film surface is so much harder than gelatin emulsion that we did not have to give further consideration to reducing film wear and tear by the reader and the microfilm editor. Also, the diazo film duplicate is less expensive than conventional silver halide emulsion film. For these reasons, we decided to use a diazo print for the working record. It was necessary to develop standards and specifications for preparation of diazo-type duplicate film since none have yet been completely developed and published (5).

The ability to produce paper enlargements readily and economically is a necessity. For many years there was no piece of equipment on the market which would do the job. For 7 years this problem was discussed with everyone we could find who could possibly help. Many persons offered concrete suggestions for the design of such equipment, but no suitable equipment was available.

Finally in 1953 the Photostat Corporation was induced to join in the development of a microfilm reader-printer. A factory-engineered prototype was installed for shake-down tests in mid-1954. The machine had many unacceptable features and was finally rejected in December 1954. It was then decided to develop the machine on the job. With the assistance of the Photostat Corporation, satisfactory equipment designed to our specifications was developed and has been in use since July 1956.

The reader-printer has all of the features of a microfilm reader and the capability of producing automatically photocopies of selected images in daylight. The reader device is an

adaptation of a Kodagraph Reader Model MPE. The photocopy device is an adaptation of a Photostat Junior Continuous Model A. The other significant elements of the reader-printer are a two-phase remote control timer, a variable transformer to control the output of the projection lamp, and an automatic certification printer with selective lockout.

With this machine the operator can rapidly find a desired record image and produce a certified copy merely by pressing a button. The cycling time is about 25 seconds.

Conclusion

With the completion of these studies and development of equipment, a specific proposal for a microfilm program met with administrative and legislative approval. During this process, necessary amendments were made to the State Health and Safety Code (6) and funds were appropriated to implement the program.

The essential parts of this program were put into operation in 1958. Following is the present procedure. Currently registered certificates of birth, death, and marriage are microfilmed on a rotary camera at a 17 to 1 reduction ratio on 16-mm. silver halide film. This film is used as a one-purpose current processing medium, that is, as a medium from which to punch tabulating cards from which statistical reports and indexes are prepared. The current processing film is filed in security storage within 2 or 3 months after receipt of certificates and serves as a temporary security copy until the permanent copy is prepared at the end of the lag period. During the lag period, the original certificates are used for all reference purposes, except for the key-punching medium.

After the lag period of 15 years for births and 5 years for deaths and marriages, a 16-mm. silver halide original film at a 17 to 1 ratio and a diazo duplicate film copy are prepared. The silver halide original film is placed in security storage, replacing the temporary security copy. The diazo duplicate film copy is used as the current working record. The diazo duplicate copy reflects all amendments on a current basis. Provision is made so that the silver halide security copy can, if needed, be used to prepare

another diazo duplicate which will reflect all amendments. The original records go to dead storage and can be destroyed on permissive legislative authority.

This system, designed primarily to use microfilm as a working record, has operated successfully now for more than 11½ years and appears to be an effective solution to the problem for which it was designed.

REFERENCES

- (1) State of California Department of Finance: Report A.N. 314. Sacramento, Management Analysis Section, February 1951.
- (2) State of California Department of Finance: Survey 733. Sacramento, Organization of Cost Control Division, June 1956.
- (3) U.S. Bureau of the Census: The certificate correction problem as related to microfilm. Washington, D.C., U.S. Government Printing Office, September 1943.
- (4) California State Department of Public Health: Certificate reference study. Berkeley, Bureau of Records and Statistics, October 1956. (Mimeographed.)
- (5) California State Department of Public Health: Standards and specifications for diazo duplicate film print. Berkeley, Bureau of Records and Statistics, February 1958.
- (6) State of California Health and Safety Code Sections 10036 and 10037, 1959.

Legal note . . . Sanitation

Municipality enjoined from operating an open burning dump so as to create a nuisance. *Proulx, et al. v. Keene* (158 A. 2d 455, New Hampshire, February 1960).

In accordance with a State statute, requiring New Hampshire cities and towns to maintain public dumping facilities, the City of Keene established an open burning dump on land within its boundaries.

Plaintiffs sought to enjoin the operation of the dump as a nuisance, complaining that it subjected them to substantial annoyance from smoke and odors, interfered with the enjoyment of their properties, and depreciated the value of their land.

The lower court found that charred and unburned paper and debris were blown from the dump onto lands of the plaintiffs. Frequent smoke and odors also occurred, which were at times "almost sickening to smell," caused a "burning" sensation of the eyes, and required that bedroom windows be closed and picnics be held indoors.

Appealing from the decision of the lower court granting an injunction, counsel for the City of Keene argued, among other things,

that the city, being required by State law to maintain the dump, could not be enjoined from performing its duties. The Supreme Court of New Hampshire disposed of this argument by pointing out that the State law specifically provided that the disposition of waste must be in such a manner as not to create a nuisance, and that the injunction did not prohibit the operation of the dump entirely but only its operation in such a manner as to permit the escape of smoke, odors, and debris to plaintiffs' lands.

The court noted that although the city was exercising a public right in performance of a public duty imposed on it, its use of its land could not be unreasonable as against adjoining landowners. In upholding the injunction, the court found that the evidence supported the decision that in this case the use of the land for a burning dump was unreasonable.—SIDNEY EDELMAN, *assistant chief, Public Health Division, Office of the General Counsel, Department of Health, Education, and Welfare.*