"Archival soundbites, footage, and photographs — past, present and future: The perspective of a documentary filmmaker and sociologist."

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Introduction

Documentary and educational film-makers trying to express sociological concepts have always had a great appetite for archival footage and photographs. In recent decades, this has come to include numbers and statistics and soundbites, too. This appetite will increase in a quantum fashion when hypermedia[2] (also called multi-media) takes hold as an educational, instructional tool.

I am a sociologist and the writer, producer and director of six major educational documentaries which have been rented and sold to universities and organizations across the United States. As a consequence, I have spent a good deal of time tracking down footage, photographs, and sounds to include in documentaries. Therefore, I would like to share some thoughts about the storage and retrieval of such items - in the past, currently, and in the future.

My remarks will pertain primarily to documentaries and educational films, but they have relevance to many other instructional uses of such information. My favorite definition of the documentary is that it is a file or tape made with no love story, no plot, and no anticipation of profit.

A more serious definition, befitting the archival focus of this paper, is presented by legendary documentarist/critic John Grierson: documentaries entail "the creative treatment of actuality." Relatedly, documentary pioneer Dziga Vertov claimed the documentary's task is to capture "fragments of actuality" and combine them meaningfully.

Radio and television news still use the term "actuality" to refer to the real world sights and sounds they record. Documentaries and other educational films and tapes generally present "actualities" within a frame of reference or provide some interpretation.

Past

Regardless of the kind of documentaries they made, film-makers have almost always spent time chasing down the images, words and sounds they needed to make their point(s). Erik Barnouw talks of the documentarian as biographer (e.g., P.M. Adato and his "Georgia O'Keeffe"), historic chronicler (e.g., Barbara Kopple and her "Harlan County, USA", explorer (e.g., Robert Flahrety and his "Nanook of the North"), promoter (e.g., Frederick Leboyer and "Birth without Violence"), and guerrilla (e.g., Peter Davis and his "The Selling of the Pentagon").

"Biographers" obviously utilized a good deal of archival data, whether more traditional ("Paul Robeson: Tribute to an Artist" - 1980) or innovative ("Wasn't that a Time!" - 1982 - a celebration of the singing group, The Weavers). These works are not to be confused with "docudramas" which likewise use archival data but which are really historical fiction rather than documentary (Barnouw, 1983:309).

And "historic-chroniclers" likewise were heavy users of archival material. Since World War II, film archives have proliferated because many new countries felt film archive collections would underscore their unique cultural traditions and beginnings. Film-makers and collectors often gave their holdings to such collections.

Revisions of historic dogma often resulted as documentarists using these collections sometimes found "it just wasn't so." Revisionist history got a boost from such debunking documentaries as "World at War" (1973), a re-examination of WWII by Thames Television; "Men of Bronze" (1977), a chronicle by William Miles of a WWI unit of black Americans who fought heroically for the French after being refused by General Pershing who only wanted to command white soldiers; and Connie Field's "The Life and Times of Rosie the Riveter" (1980) which chronicled the important contribution American women made to winning WWII (Barnouw, 1983:308).

On a personal note, I remember in the 1970's going to the Picture Collection at the New York Public Library whenever I was "East" — being a Californian — because I needed a picture of Freud's mother or a shot of Babe Ruth's wife for my work. The remarkable thing about this collection besides its breadth was the easy access to it. An out-of-state person such as myself could get a lending card with no trouble and — even more amazing — could borrow numerous photos (usually mounted on pictureboard) for a long period of time, taking them 3000 miles away and mailing them back as I usually did.

In the past, before computers, keeping track of all the footage, still photo inserts, sound effects, etc., for a documentary was a monumental task. Just coordinating the search for such materials was difficult since one often had to retrace ground all over if the image proved impossible to duplicate or the sound was filled with "noise" or other impedimenta.

Present

The advent of the computer meant paper and pencil lists and scores of production assistants could be dispensed with. Herewith is an accounting of how storage and retrieval works in many contemporary documentary projects. Since the film making process is fairly well known (strips of film spliced together, editing tables, A & B rolling, etc.), the focus here will be on the video-making process.

Computer list management and time-coding have made the handling of large numbers of actualities, words, numbers, images and sounds much more manageable for documentarians and makers of instructional videos.

Documentary-makers store and retrieve tape footage of actualities, etc. by means of "time-coding".[3] Using a time-code generator, they put down an electronic signal along the length of the tape(s) on which they have recorded their needed information/data. This creates a unique "address" (in hours, minutes, seconds, and frames) for every bit of material on the tape(s). Time-coding is often done when copies of the original tape are made. (Generally, people work with copies while composing their work prints or "rough drafts" rather than risk erasing or damaging their original tapes. The originals are used again when the final print or "edit master" is created.

When time-coded tape is played, the "address" is seen in a window — usually at the top of the TV screen. This 8-digit address lets the documentarian manually or electronically find the exact place on the tape he or she is looking for. Time-coding is a frame accurate version — with electronic markers — of the counter gadget seen on less sophisticated VCRs.

Lists of the "addresses" (locations) of the start and end of all tape segments can be put into a computer which then allows documentarians to pick and choose the footage, images, sounds, etc. he or she desires. A list of the desired segments can then be used to tell editors (or sometimes automated edit machines) how to assemble the documentary.

The advantage of computers in present-day documentary-making is that they greatly speed up the process of locating and retrieving moving images - as well as still pictures, sounds, graphics and music. They also facilitate the ebb and flow of decision-making re.***sic*** what to include and exclude from the final cut of a documentary — heretofore, one of the most onerous tasks confronting the producer.

Some well-financed documentarians utilize videodiscs,[4] especially for storage and retrieval of still images. They shoot pictures using a single frame 16mm film camera and then transfer the images to videotape with a telecine (essentially a film and video camera combination). Most of them have then had to send the tape[5] to a special lab to make the laser videodisc. This could take days or even weeks.

Mention should be made at this point of several sources of image data for contemporary documentarians. Slide houses and stock footage libraries carry images of all sorts which can be bought. Unfortunately they are fairly expensive sources. A major newsmagazine also sells its hard-won still pictures on the open market and some news stations likewise sell footage. These latter sources — while also expensive — hark back to the "morgue" tradition started by newspapers. To be ready for any breaking story, and especially the deaths of famous people, newspapers created "morgues," i.e., files of photos and newsclippings of selected people and organizations.

Finally, sound effects are sold by the "needle drop" (a holdover from phono records); and, of course, canned music can be bought for a song and copyrighted music for an arm and a leg.

Future

The future is already with us in some ways given that "digitization" of audio and video are current technologies. The main problem for documentarians is that digitized video is currently very expensive.

In the high resolution, high fidelity age we live in, the shortcomings of analog [5] stored and retrieved video images makes digitization attractive as the technology of the future. (Most analog video becomes fuzzy after several generations — copies of copies — but new "digitized" video continues to have sharp video resolution after scores of generations.

Digitization

To digitize an image, it must be scanned using an electronic camera and a computer. Each detail on the image — including light and dark variations — is assigned a number that is stored. If high resolution is desired, then digitization gets very expensive because millions of numbers must be stored. (A 5¼" disc can only hold 2 or 3 images.) And color images require extra

memory, often a megabyte at the bare minimum.

Today, it is more cost-effective to use analog information. One can store 54,000 video pictures on a laser videodisc. But digital compression techniques and other technological breakthroughs should probably make digitization the technology of the future.

Digitized images can come from almost any source, but it helps to start with high resolution pictures. A character generator is used to put an identification "address" on each picture. This is entered on the original image as well as onto a computer using a list management program. Documentarians are then able to enter, find, and extract data from the database.

When recording still frames of video on a disc, care must be taken that there is no dropout, jitter, or chroma crawl. Video encoders and filtering processes can sometimes deal with these problems.

Once an image has been digitized, one can play with it — erase parts of it, increase it, alter it any way ones wants. With high speed digitizers, it is possible to change things in a moving video scene. (High-speed digitizers — called frame-grabbers — can capture images in one-thirtieth of a second. Conventional digitizers may take several minutes, especially if quality reproductions are desired.)

This ability to partially erase or increase a digitized image will solve one problem documentarians face: encountering an image that is so cluttered with distracting elements that the key element is missed or one that is too small to be clearly shot. Even a micro lens cannot always capture the essential element. For example, in my "Stigma" documentary, being able to zoom in on a keloid scar (a thick fibrous scar) on a person would have eliminated my having to consult a medical journal for an extreme close-up picture of a keloid scar.

Organization

The continuing explosion of audio and video information and "actualities" means that archivists and librarians will have to have highly organized systems for selection, storage, and retrieval of audio and visual information. Like a family trying to find a shot of Great-Aunt Betsy in a shoebox of color slides or in a cabinet of home movies, they might easily become overwhelmed. All this assumes that archivists will have the proper training or help to guarantee the "quality" of the images and sounds they store. (Resolution, clarity, audio and video levels, lighting, composition, and security are part of the "quality" issue.)

Let us look closely at the matter of "selection," especially the challenge of selecting which "actualities" to store. While we might debate whether the number of truly "significant" events and verbal utterances has increased in recent times, there is no question that the record of events and words has. Professional photographers, journalists, media departments, and — yes, amateurs — record countless scheduled and unscheduled events, speeches, and goings on. Most amazingly, amateur recordings, such as the Zapruder film of the Kennedy assassination which was rare and freakish in 1963, are now common. Tourists and everyday people with AV gear record planes crashing, bridges collapsing and people being shot.

There are important questions to answer: Who will decide from the avalanche of possibilities which events, speeches, etc., are significant and therefore worth saving electronically? Probably committees composed of historians, social scientists, journalists and the like.

And what criteria will they use? Will archivists automatically save the inaugural and farewell speeches of anyone who has attained a certain political level, say senator or governor? (This would probably be too status and stratification bound and would mean non-establishment speeches (like Martin Luther King, Jr.'s "I have a Dream" speech) would not be stored.)

Will certain people and concepts be favored during certain periods because of their cultural centrality or importance? Maybe early TV shows and personalities ("Mickey Mouse Club," Phil Silvers,) would be emphasized for the 1950s, counterculture happenings for the 1960s, professional athletes for the 1970s, and entrepreneur and CEOs for the 1980s. No matter what criteria are used, the selection procedure is bound to be difficult.

Deliberations over what is significant or not quickly get into issues of "reality." It seems as if more Americans are able to identify certain TV commercials than identify the state of Ohio on a map. (Ditto for certain Hollywood movies.) Apropos of this, there are Clio Awards (Clio was the muse of history) given each year for outstanding ads of various sorts. As a consequence, archivists will have no trouble documenting our "reel" history (according to Madison Avenue and Hollywood). It's just our "real" history that will be difficult to document.

Some further thoughts and recommendations for future information storage and retrieval, though from the limited perspective of a documentarian (I base these recommendations partly on the assumption that everyone will someday be assembling words, pictures and sounds — for institutional use or for personal use (much as people assemble scrapbooks and photo albums today):

- Audio and video data should be stored digitally on videodisc. Film and videotape are too fragile, necessitating recopying every so often because of oxidation and other chemical processes.

- Audio and video information might best be cataloged and stored by social science discipline. These databases would resemble the CD-ROM [6] databases which presently exist for some of the social sciences: e.g., PsycLIT (the APA's Psychological Abstracts), ERIC (Educational Resources Information Center), and Infotrac.

- Mechanisms similar to those used by the United Nations to gather and report data might be used to insure that important audio and video data around the world are preserved and made accessible. The database might be organized along the lines of MEDLINE (published by the National Library of Medicine) which is international in scope. If possible, the databases should not overemphasize Western and European audio and video.

- All databases might be updated quarterly and then reassessed at the end of each year and each decade — much the same way that newsmagazines summarize the year and decade in words, pictures, and the like.

Conclusion

Over the years documentarians and others making educational films have utilized increasingly sophisticated means to obtain the archival footage, photographs and sounds they needed for their work. The amount of this archival data has grown exponentially, and the need to access it will too as interactive learning and hypermedia find their own niche alongside documentaries.

Digital storage on videodisc probably represents the most realistic way for these immense amounts of data to be stored and accessed easily.

Much ongoing effort will be required to select, record, and organize the untold numbers of words, numbers, images and such. The cataloging, tracking, and safe-keeping of audio and video data, though should be well worth it. Nothing comes quite alive like the voices, gestures, and actions of the greats (and even the not-so-greats) of yesteryear. In a sense, archivists of the future will be in the business of freezing people and then bringing them back to life - but electronically rather than cryonically.

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[2] Hypermedia (or Multimedia) refers to the coordinated use of more than one medium - sound, video, animation, graphics and text for example. Moreover, hypermedia can mean all these media plus "interactivity," where the medium responds to the user and vice versa. Users, typically, explore hypermedia materials at their own pace, moving in different directions through the information, creating their own interpretations, involvements, experiences.

[3] Time-code refers to the 8-digit address code used to identify each video tape frame by hour, minute, second and frame number (allows frame-accurate precise editing).

[4] Videodiscs are like 33 1/3 phonograph records and they store video information. Often used for instant "replays" in sports broadcasts, videodiscs allow for user friendly instant access to information as well as slow motion, freeze-frame, and interactive video effects. A major advantage of discs over tape, though, is there is no diminution of picture sharpness when dubs (copies) of the image are made.

[5] In analog processing, an electrical signal varies over a continuous range to represent the original audio or video that is being reproduced. In digital processing, electrical impulses are either on or off - just as they are in computers. One digit (0 or 1) is generally represented by the "on" state of an electronic device while the other is represented by the "off" state. One can store visual images on laser-based read/write optical discs as analog information or digital information, i.e., as video or as computer data.

[6] A CD-ROM (Compact Disc-Read Only Memory) allows high density storage, having a capacity of 550 Megabytes (roughly equivalent to 1,500 floppy discs or 100,00 pages with 5,500 characters per page).