

TECH NEWS

by Rodger J. Ross

THE FILM-VIDEO DEBATE

The November issue of *American Cinematographer* has an article on this topic, made up of excerpts from a speech by Lars Swanberg at a conference of the Nordic Film and Television Union in Copenhagen. Mr. Swanberg, who is head of the department of technical information and development at the Swedish Film Institute, lashed out at those who are making an issue of film vs. video. He claims that television broadcasters have set out to prove, at any cost, that film is inferior, even to the extent of using half-truths and manipulated statistics. This is happening especially in ENG (electronic news-gathering) applications.

But there is another, more favorable side to this film/video controversy – the use of electronic equipment to produce videotape recordings for purposes other than broadcasting. According to Mr. Swanberg, over 13,000 audiovisual program titles were produced in the USA in the year 1973 – more than the three television networks, NBC, CBS and ABC, together broadcast in prime time during that year. He then goes on to define “video” as a medium and a new industry based on non-broadcast television. He claims in support a statement by Lars Edling, video expert at the University of Lund, that the formal difference between television and video is that television involves broadcasting while video means playback from a video recorder connected to a TV monitor.

There is a need for some term or designation that would describe non-broadcast program production on videotape, but “video” seems a poor choice. Video is already defined in dictionaries as an adjective, of or pertaining to television, especially to the picture portion of the program,

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and as a noun, television. *The Alphabetical Guide to Motion Picture, Television and Videotape Production*, published by McGraw-Hill, defines video as a term pertaining to the bandwidth and spectrum position of the signal which results from television scanning and is used to reproduce a picture. (My own definition of video is a means for producing pictures by an electrical scanning process instead of optically, as with film.)

The term or designation selected should not be so obviously exclusive as to still further aggravate the confrontation between television and film. After all, programs being made on videotape do not have to originate always with electronic cameras. Film can – and very often does – contribute significantly to program production on videotape. It is so easy to make transfers from film to videotape that quite often the use of a film camera for making the original recordings is preferable to the much more costly and inconvenient electronic camera and its videotape recorder.

Future Prospects for Film

Too often filmmakers look on television as an enemy, committed to depriving them of their livelihood. As the portability and versatility of electronic equipment is improved, television makes ever greater inroads into areas previously the exclusive preserve of film. The latest development in this direction is the widespread acceptance by broadcasters of ENG, displacing film cameras in news gathering and related applications.

Of course, as Mr. Swanberg points out in his lecture, large numbers of instructional, educational, promotional, industrial, scientific, advertising and amateur films will continue to be produced, and television broadcasters may even “rediscover” film when the current overenthusiasm with ENG subsides. A much more realistic attitude towards television would be to take advantage of the opportunities that electronic systems offer to expand film use. By far the most profitable avenue of exploitation is in the

production of programs on videotape using film as the original recording medium.

The film camera is a near-ideal picture recording device. It is light in weight, relatively simple in construction, and can be taken anywhere as hand baggage. In reality, a film camera is a combination camera-recorder, with the recording material in a magazine attached to the camera. Compare this with portable electronic equipment consisting of a camera, control unit, videotape recorder and power supply.

A film camera is a mechanical-optical device that needs relatively little maintenance, and no preliminary set-up adjustments before recording can commence. The recording material – film – has built-in response characteristics, yielding perfectly sharp images in color when exposed to light through the lens. Accompanying sound can be recorded on the picture film (single system) or separately on magnetic tape (double system) without an electrical connection between the camera and sound recorder. The capital cost of the film camera and its accessories is only a fraction of the cost of electronic equipment giving pictures with comparable quality.

Film-to-Videotape Transfers

An even more important advantage in making original recordings on film is that afterwards either film prints or transfers to videotape can be made from the originals. A common practice in film production is to edit the originals into A and B rolls so that, by printing first the A roll, then the B roll, from common start marks, effects such as fades and mixes, titles and credits can be added. A similar procedure can be followed in making transfers to videotape, except that these and other effects can be put in electronically. At the same time, the picture color balance can be shifted in any desired direction by adjusting the video camera controls.

Several different methods can be used to transfer film to videotape. The most common method, employed

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by broadcasters, is to project the film into a television camera with equipment known as telecine. A telecine chain consists usually of two film projectors and a slide projector, optically multiplexed into the camera. Alternatively, the film pictures can be projected onto a small white screen and picked up with a television studio camera set up in front of the screen. The television camera scans the projected images, producing video signals that can be electronically processed in a switcher-mixer and special effects unit, and then recorded with a videotape machine. A camera control unit displays the camera output as electronically generated pictures, as well as the video waveforms from which the pictures are produced. Adjustments can be made in the camera control unit while the film is running to compensate for films that are under- or overexposed, as well as to alter the color balance of the pictures. This procedure offers more scope and flexibility than the familiar film timing procedure, with the added advantage that the television monitor on which the pictures appear shows the effects of the adjustments as they are being made.

Videotape Production Facilities

When a film camera is used to make the original recordings the much more costly and cumbersome electronic equipment needed to make the transfers and assemble the finished productions on videotape can be set up in a comfortable air-conditioned studio back at home base. With an arrangement of this kind there is no longer a need for compromises between portability of the equipment and the level of picture quality that can be achieved in the videotape recordings. Instead, the compromise only needs to be made between the cost of the equipment and the level of picture quality that the end use demands. Often this resolves into a question of the kind of equipment that can be purchased with the funds available.

The professional quadruplex 2-inch videotape recorder gives the best quality, but the cost is quite high. Many different makes and models of helical scan recorders taking various widths of tape are available also, at much lower cost, and these machines are used extensively in applications where lower standards of performance can be tolerated. Television cameras, too, are available in a great

range of makes, models and price ranges. It is very important to carefully assess the technical requirements of a film transfer and production assembly operation before investing in equipment.

There are no standards as yet for helical scan videotape recording. If the objective is to distribute productions on videotape, the best plan would be to make production masters on the highest-quality recorder that can be obtained, and then make dubs as required from the master onto the various tape formats that the distribution arrangements call for.

EQUIPMENT NEWS

Note to Canadian distributors: We would like to include the names and addresses of Canadian distributors of equipment and services mentioned in this section. Please ask your suppliers to give Canadian sources in their publicity releases. Ed.

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