

TECH NEWS

by Rodger J. Ross

NEW FILM EDITING TECHNIQUES

An article in the Sept. 1973 issue of the *BKSTS Journal* (British Kine-matograph, Sound and Television Society) by Leo O'Donnell described work being carried on at the National Film Board in Montreal on developing a time code marking system to eliminate the need for traditional slating of picture and sound films. He said: "It would appear that the era of time codes on motion picture film has arrived".

Since the mid-1960s time codes have been used extensively in videotape editing. The March 1970 issue of *SMPTE Journal* had several papers describing proposed systems. An engineering committee was set up in SMPTE to select the best method, and in July 1975 an American National Standard for the videotape time code was published.

Progress in time coding of motion picture films has been somewhat slower. Many film editors are understandably reluctant to give up traditional methods of working. In any event filmmakers do not have to work under the same kind of pressure as in the production of programmes on videotape. Time codes on film offer many interesting and profitable possibilities, however, and it is quite likely we will soon see films being assembled on computer-controlled multi-plate editing tables.

For many years the Moviola editing machine was the standard of the motion picture industry. Then, after World War II, rapid expansion in the use of 16mm film in television created a demand for simpler and more flexible editing facilities. At first, television film editors made use of equipment designed for amateur use - a viewer, sound reader and footage counter mounted in line on an editing bench.

Filmmakers in Europe had been using editing tables for many years.

The first Steenbeck editing machine in the United Kingdom was installed in a large television film department in 1955. Since then the use of editing tables has spread to North America, as filmmakers in increasing numbers adopt the new editing methods made possible with this type of equipment.

In its simplest form, an editing table consists of a pair of film reels mounted horizontally on a flat surface, and a transport mechanism that can be motor driven at any desired speed, while the pictures are projected on a translucent screen and any sound on the film is reproduced with a small speaker. Editing tables are available with two sets of reels and transports for synchronizing separate sound and picture films. The transports can be operated independently, or locked together, and run forwards or backwards at any desired speed.

Many different versions of these basic designs have been developed. In May 1969 when the television news service of the BBC was being moved into a new centre in London, two KEM editing tables were incorporated into a special console, to give a four-transport facility, and a television scanning unit was included to enable the pictures to be seen remotely on monitor screens. Later designs by these and other manufacturers have interchangeable modules for different film gauges, and up to six transports on a single table. Starting with one picture and one sound track, an editor can go to two or three sound tracks with one picture, or two or three pictures with one or two sound tracks. The Showchron expandable editing system can handle up to three pictures and three sound tracks. Eventually, in 1971 a Moviola editing table appeared on the market.

The ability to cross-cut between two picture films running in synchronism on separate transports on an editing table, along with a separate magnetic sound track has opened up many interesting possibilities for multiple-camera filming. This technique has been used to some extent in the production of television programmes on film, but these efforts were severely hampered until recently by the lack of comprehensive editing facilities.

In 1950 Jerry Fairbanks developed what was known as the Multicam process, in which three or more cameras, running continuously, were used to make long, medium and close-up shots simultaneously and record continuous action. In the mid-1950s the Jackie Gleason show was filmed with the Electronicam system which utilized three film cameras to make the film recordings, while the performance was being monitored electronically by television cameras sharing a common optical path. The Electronicam films were integrated into programme form by cross-cutting on an ordinary editing bench with a four-way synchronizer, a small picture viewer and multiple supply and take-up reels on spindles.

As enthusiasm for multi-camera filming waned in the USA, the centre of interest shifted to Europe where the Electronicam system was taken up and used successfully by Bavaria Atelier GmbH in Munich, West Germany.

In multi-camera filming all of the cameras and the sound recorder must run in synchronism without interconnecting wires. This can be accomplished with the now-familiar crystal control methods. If the cameras are made to operate intermittently - and this is usually the practice to economize on film - there must be some means to identify on the sound track the camera that is taking the scene. One simple method is to record cue tones on the magnetic film, a different tone frequency for each camera. At the same time the picture films must be identified by some sort of "slating" procedure. Afterwards the programme is "assembled" by splicing together short sections from scenes recorded with the different cameras, and matching these with the sound track. Editing tables with transports for two or more picture films and a sound track can greatly simplify this quite complicated task. But there is still the problem of locating the desired picture segments in hundreds or perhaps even thousands of scenes recorded with the cameras.

In the European Broadcasting Union there is a committee known as Sub-Group G3 that has been working for

Long time Supervisor of Technical Film Operations at the programming centre of the CBC, Mr. Ross is the author of two books, Television Film Engineering and Color Film for Color Television and has just won the Agfa-Gevaert Gold Medal, awarded by the Society of Motion Picture and Television Engineers.

several years on a scheme to identify pictures and sound with time codes. Several different types of codes and methods for recording the codes have been proposed. One of these, developed by the Institut für Rundfunk Technik (IRT) in Germany consists of a BCD (binary coded decimal) code impressed simultaneously at one-second intervals on the picture film and magnetic sound tape. The code is recorded in the sound track area of the picture film with tiny light-emitting diodes.

At the SMPTE technical conference in Toronto in Nov. 1974 Gunter Bevier of the Steenbeck Co. described how an editing table for two pictures and two sound tracks can be used to make the assembly of multi-camera films much easier and simpler. The next step is to record time codes on

the films while the cameras and sound recorder are running. Editing tables can be fitted with decoding equipment that will convert the coded information into readable numerals.

At the start of an editing session, a picture film is advanced to the desired scene; then the sound film transport is activated. When the two numbers coincide the sound film is stopped. This operation can be made totally automatic by utilizing modern digital technology.

At the time this paper was being given a prototype machine was in the testing stage at IRT and by German television stations. Mr. Bevier's paper was published in the August 1975 issue of *SMPTE Journal* with the title "New Techniques for Editing Multiple Camera and Non-Slated Films". □

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.

New CP-16 Camera for Double System Sound Only

Cinema Products Corp. has announced that a new double system sound reflex camera model CP-16R/DS, is now available. The new camera model is identical to the standard CP-16R reflex in every respect, with the same accurate crystal controlled motor and all its other features. The only difference in the new model is the removal of the flywheel and film threading rollers needed for single-system recording. As a result the CP-16R/DS is simpler, easier to thread and lighter by almost three-quarters of a pound. Further information can be obtained from Cinema Products Corp., 2037 Granville Ave., Los Angeles, Calif. 90025.

Mitchell Camera Spare Parts

Alan Gordon Enterprises, Inc., has acquired most of the some \$750,000 worth of terminated inventory from the Mitchell Camera Co. The inventory includes camera parts for most models of 16 and 35mm Mitchells, including the NC, BNC, standard and high speed, plus many 70mm parts. The newly-acquired parts will be merged with the existing AGE Inc. inventory, making the company one of the largest sources of Mitchell spare

parts in the industry. Inquiries should be addressed to Ted Lane, AGE Inc., 1430 N. Cahuenga Blvd., Hollywood, Calif. 90028.

Electronic Graphic Design

A unique and exclusive form of electronic graphic design is being offered by Image Process, a recently established Canadian company. Image Process has developed DECIM (Density Electronic Colour Image Manipulation) which capitalizes on an electronic colourization method originally developed by NASA for use in lunar crater evaluations. With this method any original image, black-and-white or colour, can be electronically colourized to provide a wide range of image manipulation capabilities. Image transformation possibilities are practically infinite.

With the market clamoring for new dimensions of expression, the DECIM Process can become an art director's dream, the innovators claim. Applications range from enabling designers to visualize wall-paper or fabric patterns to the creation of images that appear to emanate from a graphic twilight zone to present a product in an exciting and revolutionary manner.

Further information is available from Electronic Graphic Design, 272 George St., Toronto, Ont. M5A 2N1. Tel.: 416-366-5510.

Special Issue of SMPTE Journal

A special issue of the *SMPTE Journal* appears in November devoted almost entirely to a comprehensive re-

port on the 117th technical conference of the Society in Los Angeles Sept. 28 to Oct. 3. Included in this special issue is a complete analysis of the technical sessions and a comprehensive review of the more than 100 equipment exhibits at the conference.

New CRI Service at Film House

Bill Hambly, laboratory manager at Film House has announced that a new service is now available for producing colour reversal intermediate negatives (CRI's). Their single-purpose CRI developing machine coupled with a new Seiki optical printer gives Canadian customers fastest possible turn-around at competitive prices, Mr. Hambly says.

Sound Head for Super-8 Herculite Minette Viewer Editors

A Super-8 sound head is now available for all existing Model S5 and S4 Herculite Super-8 viewer editors. The sound head is easily attached and no modifications of the equipment are required. Power supply is a 9-volt transistor battery. The US price is \$43.95. Available from Cinema Beaulieu, 14225 Ventura Blvd., Sherman Oaks, Calif. 91403.

Increased Output With Lowel Softlight System

The new Lowel Softlight has a higher reflectance than previous models, and it has greater heat resistance, allowing the use of two 750-watt lamps. These improvements boost the light output to 125 f.c. at 10 ft., surpassing the performance of many conventional 2000-watt softlights currently on the market, with 25% less power. The entire unit folds to attache-case size and weighs less than 8½ lbs. For additional information contact Art Kramer at Lowel-Light Mfg., 421 West 54th St., New York, N.Y. 10019.

New Angenieux 10-150 Zoom Lens

This lens for use with all CP16R reflex 16mm. cameras has a BCP mount and offers both a long zoom range and the highest magnification of any 16mm. zoom lens on the market. Of special interest is the ability of the lens to focus down to a field size as small as 1 x 1⅓ ins. (26 x 36mm.), with a working distance of 24 ins. (60 cm.) to make lighting of objects easier. The US. price is \$2850. For further information write Cinema Products Corp., 2037 Granville Ave., Los Angeles, Calif. 90025.