

A progress report: The Professionalization of Super 8

By RICHARD LERMAN

Recent developments in the field of Super 8 sync sound filmmaking have made it important for the professional filmmaker to take a closer look at production possibilities available in this gauge. Early sync methods ran the gamut from those which were nearly impossible to work with to those requiring nearly impossible-to-get materials. And because many developments in this area initially began in Europe, materials and information were even more difficult to obtain. Several recent systems have now developed to a point where it is possible for the filmmaker to shoot and edit with the same ease (or difficulty) that exists in 16mm—and with sync sound. In fact, with some of these systems, it is possible to complete productions up to and including the mixing of a soundtrack with available hi-fi equipment. One can also work with crystal controlled cameras and cassette recorders. The area of Super 8 production still undergoing much change and development is the release format.

The essential problem in shooting sync sound in Super 8 is getting to the editing stage from the sync material. It is not very difficult to have a recorder and camera run in sync, or to have sync information stored on magnetic tape, along with the location soundtrack. What proved difficult for a while was getting the sound and picture to have a frame for frame correspondence *and* a length for length correspondence as in 16mm and 35mm double systems. At 24 frames per second, the Super 8 film is actually running at 4.0 inches per second. And while this speed is close to $3\frac{1}{2}$, i.p.s., a standard tape recorder speed, it is certainly not close enough to maintain sync. Because of this, early editing systems sometimes made



Robert Doyle shown with Super 8 Sound Recorder.

use of sprocketed $\frac{1}{4}$ " tape, and although it was possible to maintain sync between picture and sound, and even though a frame of film corresponded to a "frame" of sound on the sprocketed tape, the distance between the frames was not the same, for both had to run at different speeds.

Another solution was to record sound with a Pilotone 60 Hz signal from the camera and then transfer to 16mm mag film and edit with a S8-16mm sync block. This was similar to the previous solution in that there was a frame for frame sync, but again with different sized frames. Even with reel slippers or differentials between the Super 8 and 16mm reels, editing was a difficult process, but at least there was some connection with regular 16mm practices. This was also similar to editing a 16mm picture with a 35mm track—once a fairly standard practice.

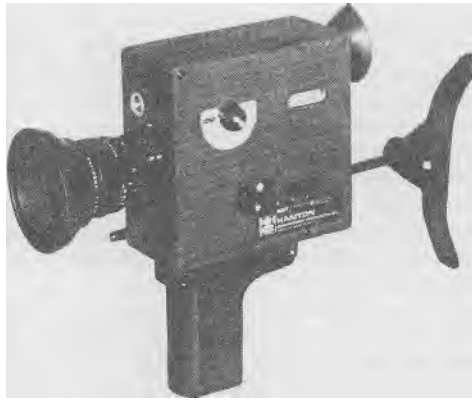
Both these systems had still further problems when it came time to transfer from the double system onto a Super 8 print with mag stripe. Many of the former systems were nearly always double system in projection also, because of difficulties in synching perforated $\frac{1}{4}$ " inch recording tape with common Super 8 projectors. Other systems had mechanical linkages between picture and sound to insure sync. In working with a 16mm track and a Super 8 picture, one would have had to use a Super 8 projector with a synchronous motor—usually a modified projector. Even faced with these problems, many filmmakers chose this route through the combined effects of economics and sheer determination. Early Super 8 films with sync tracks were less a tribute to the systems in which they were produced, so much as a tribute to the patience of the filmmaker.

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Obviously, it is economically attractive to shoot in Super 8. A very good Super 8 camera can be purchased for about \$300.00, if bought under list price. Two-and-a-half minutes of film, a 50 foot cartridge shot at 24 fps costs between \$5.00 and \$6.00 with processing; and if one is not too particular about quality control in processing, "discount" processing can be obtained for about \$1.20 per cartridge. When shooting in Super 8, there are no changing bags or loading—cartridges can be changed in five to 10 seconds. In a "verite" situation, this time can be easily covered in editing with cutaways. The equipment is light, and some units are very well balanced lending themselves to long stretches of hand-held shooting. Another advantage that has been reported by camera operators is that when shooting in Super 8, people are less aware of the camera. Passers-by do not gape as they might at a larger set-up. And because the cameras are smaller, they are far easier to set up in tight situations. One other advantage is the general availability of what are called "existing light" or XL cameras, with fast lenses and wide shutter angles to allow filming in very low-light conditions without lights.

Once having shot the film, and work-printed it, the difficulties begin. Super 8 is difficult to edit. Tape splices made with either press-tapes or guillotine type splicers need to be made carefully so as not to stick in projectors or viewers. Cement splices are also difficult. In terms of conforming workprint and original, there are now a few labs that offer Super 8 edgenumbering service. Super 8 sync blocks are now fairly common, and many labs will accept Super 8 A & B rolls for printing. Without edgenumbers, matching by eye is very difficult, to say the least. Editing with a sound track in double system is difficult too, when using a Super 8 sync block because of the need to crank the materials through at 4 i.p.s., or 24 Super 8 frames per second. These problems have been solved recently, and editing systems now range from S8-S8 sync blocks with mag reader and motorized drive to four plate Super 8 editing tables. One of the recent changes in part responsible for a lot of the activity in Super 8 has been the general availability of Super 8 magnetic fullcoat, or mag film.

Without Super 8 fullcoat, the above editing systems would certainly not have developed as quickly as they did. Fullcoat was the breakthrough that allowed for systems to function as in 16mm, with both frame for frame and length for length correspondence between picture and sound. As it became easier to obtain, systems were designed so that sound could be specifically transferred to this editing medium. In one system, it even became the location sound tape. 3M, Technicolor and a French firm, Pyral, all now market Super 8 fullcoat. Pyral is on a much thinner base than the mag film most filmmakers are used to, and although this



Self-blimped crystal driven modified Nizo S-56 of the Hamton/Leacock system.

makes for more difficult splicing, it also provides for better head contact, and improved sound. Because the Super 8 transfer machines do not use sprocketed drive, but instead rely on photocells to control sync and speed, there is less flutter and wow in Super 8 recorders utilizing fullcoat.

In tandem with the Super 8 fullcoat, inexpensive DC motors which could be servo controlled began to get more use by camera manufacturers. Using these kinds of motors avoided the problem of using large, synchronous motors as in 16mm. Because it takes so much less force to drive Super 8 film, these motors perform very well. With these two major developments true systems have evolved, a system being defined as a group of equipment which allows a filmmaker to produce films from shooting, to transfer, to editing, to transfer onto mag stripe print or double system projection. Because many of the early systems were mainly concerned with recording sync information with the film, and there were no standards, nearly all of these were incapable of seeing projects through to completion. Some of the earlier ones like Cine-Slave and Farnell-Tandberg are still compatible with the newer systems that use Super 8 fullcoat for editing, and by using these devices to obtain sync sound, transfers can be made to fullcoat! Out of the flurry of activity and development in Super 8, two single system cameras are available, as are three main systems using double system techniques.

The single system cameras are manufactured by Wilcam and Eastman Kodak. The Wilcam is a high quality, expensive camera using 200 ft. Super 8 mag striped stock requiring loading in a magazine. It is a quiet camera, and compares in size to a 16mm camera. An earlier version of this was a modified Minolta Super 8 camera, although the newer models to be released this Spring are built from scratch. Eastman Kodak's entry into the picture has brought a host of new equipment. Beginning with the Ektasound cameras which are intended for amateur use, Kodak then

released the Supermatic 200 series. This camera will accept either 50 ft. or the new 200 ft. sound or silent Super 8 cartridges. The system uses the fairly standard 18 frame advance between picture and sound. The Supermatic runs at either 18 or 24 fps, and along with the pre-stripped 7242 (Ektachrome EF) now available in Super 8 cartridges, Kodak will also be releasing a new Super pre-stripped film, Ektachrome SM 7244. This stock will also be available in silent cartridges.

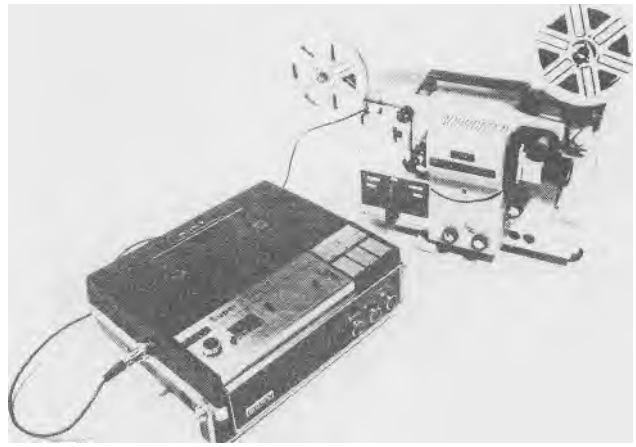
Shooting single system in Super 8 offers the same advantages and disadvantages as it does in 16mm. Screening rushes in sync is certainly no problem, although one must decide if it is wise to screen original. Editing with single system is made difficult because of the frame displacement between picture and sound, and additionally, sound quality is not as good as from double system. Viewers are available with magnetic heads mounted in the correct position for editing. With certain equipment, it is possible to transfer sound from the mag stripe to Super 8 fullcoat for double system editing; and there is another solution. Moser Development Co. of North Hollywood manufactures a Super 8 displacement recorder on which one is able to re-record the sync track in edit sync with the picture by running the film backwards through the recorder. After editing, the track is re-recorded a second time to again establish the 18 frame displacement necessary for sync projection.

Double system techniques. Three main systems using separate camera and recorder have emerged. They are the Optasound System by Optasound Corp., New York; the Leacock/MIT/Hamton System of Hamton Engineering, Norwood, Mass.; and the Super 8 Sound System of Super 8 Sound, Cambridge, Mass. The latter two use Super 8 fullcoat as the editing medium, while Optasound uses special cassettes for both recording sound, sync playback and editing.

Optasound is the oldest of the three systems, and was originally developed in England by Peter Lawson of Filmin (Films in Miniature). The system maintains sync by slaving camera to recorder, which allows for accurate recording of the sound. The recorder used is a cassette recorder made in Japan to Optasound specifications. The cassette tape is perforated by small circles along one edge, and these perfs are spaced length for length as Super 8 frames. This provides a frame to frame correspondence between picture and sound. As the cassette is recorded, these perfs pass by a photocell where they create a pulse which is sent to the camera. The camera used must be modified to Optasound specs so that pulses from the recorder can slow the camera down to run in sync. This necessitates a motor interrupt in conjunction with a once-per-frame contact switch. The motor must also be set to 241/2 or 181/2 fps so it can be



Optasound cassette recorder connected to camera.



Super 8 Sound Recorder being synced to modified Bell & Howell Projector.

Leacock/Hamton, more traditional means of slating can be used. It seems an ideal recorder for situations demanding less movement of sound and camera operators, and its flexibility throughout production and post-production is impressive. Using any of the above systems to obtain original Super 8 material then leads to more specific problems in editing, and choosing a release format.

Editing of Super 8 is difficult, unless one has a horizontal table. The Leacock/Hamton equipment, when purchased as a total system, includes a four plate table, which can also be purchased separately, for less than half the cost of a Steenbeck Super 8 table. The table has been used to good advantage by MIT and Boston area filmmakers who have produced many films by cutting original on it. The table operates similarly to the Steenbeck, and users of tables insist it is much easier to edit in this fashion than vertically, on a bench. Another table has been announced at an even less expensive price than the Leacock/Hamton table. It is being built by MKM Industries of Skokie, Ill., is smaller than the Hamton table, and is built to fit on a table top while the Hamton has its own legs. Still, all Super 8 tables are only four plate, although six plate tables can be special ordered from Steenbeck (when orders for five or more units are received by the company.)

Super 8 Sound has completed work on a vertical bench, which is the next best thing to a table. It is less than half as expensive as the MKM. The heart of the bench is a 24 fps motorized sync block, complete with a clutch so the motor can quickly disengage from the block. Also, Al Mecklenberg and Jon Rosenfeld who helped develop the Leacock/Hamton system have designed a pair of very effective reel slippers that make it almost easy to cut vertically. The slippers, or differentials, deliver torque to the reel that would otherwise spill film or fullcoat. The viewer and mag head are in an edit sync arrange-

ment so marking picture and track is convenient. The only drawback is turning rewinds at 24 Super 8 fps, a difficult job. Still, for filmmakers with small equipment budgets, this is a viable alternative.

Optasound's editor will work on a totally different principle than either of the above, more traditional editing systems. Aside from being able to play cassette and film in sync, editing will be accomplished by an electronic edit of the soundtrack on the cassette. After a double system screening of film and cassette, editing can begin. If segments of a 50 ft. roll of Super 8 film are to be included, an editing tone is recorded on the cassette, frame for frame with the film. When a section of film is cut out, no editing tone is recorded, so that on playback, the cassette will electronically be cued back into synchronization. Optasound is seeking patents on this system, and information as to how this is accomplished is sketchy. Sync can be maintained so long as editing is done in a sequential fashion. If an editorial decision is made that requires a sync shot from another sequence or roll of film, the editor is able to record in sync on the mag striped film. In this way, shots out of sequence can be synced up.

An editorial decision requiring a sync

shot from another roll of film requires the insertion of a new cassette in the table, and when the desired section is found, and after splicing the two shots (with mag stripe) together, the sound can be transferred to the stripe. The final edited version is single system. The transfer of cassette to mag stripe can be mixed so that if music or effects are *first* recorded on the mag stripe, sync sound can be recorded sound-on-sound on the mag stripe. Delivery on the editor is expected in April, and a second model incorporating Super 8 fullcoat is being planned.

Editing in Super 8 is often done on the original, a situation due in part to lack of any stock with latent edge numbers. Without edge numbers, matching work print and original can be nearly as difficult and time consuming as taking the extra time and care needed to cut original. Certainly on a vertical bench, workprints ought to be cut, and even on a table, some scratches will result. Projectors are also a problem. Many editorial decisions can only be made after screening with projector, and if possible, an interlock to check sound track, too. Most Super 8 projectors do not handle splices very well—due in part to their automatic and semi-automatic loading features. Unless



Close-up of an Optasound cassette showing length for length super 8 perforations.

the projector has been thoroughly cleaned, scratches usually occur on film in most projectors. Clearly with the advancements made in Super 8 production equipment, the entire medium will be more closely scrutinized as a means of production, and this ought to lead to further improvements with more professional equipment.

Mixing in Super 8 offers a number of possibilities. In cutting double system, one could make 16mm mag tracks from which a mix could be done onto 1/4" or 16mm track. Many labs that supply prints in Super 8 require that the soundtrack be on 16mm, so that transfers to mag stripe can be done. Both the Leacock/Hamton and Super 8 Sound systems have mixing capabilities. The Hamton resolver can control up to three Tandbergs (that have been modified for Super 8 fullcoat), and in this fashion, a three channel mix with interlock projection is possible, for the Bauer T 40 projector with the Hamton system is synchronous. The mix down could go to any Pilotone recorder, or even back to the cassette, with some loss of quality.

Super 8 Sound offers mixing by utilizing one track of a quadrasonic 1/4" tape deck to record pulses from the Super 8 Sound Recorder while simultaneously recording one track of sync material. By then resolving the Recorder to the channel of pulses, two more channels (one at a time) of track can be recorded onto the quad deck. When all recording has been done on the quad deck, it is then mixed down onto fullcoat on the Super 8 Sound Recorder which syncs to the pulses fed to it from the quad deck. A drawback here is that some quad decks need slight modification, al-

though expensive decks do not, and also the Super 8 Sound Recorder is capable of handling only 5" reels, or about 19 minutes of fullcoat. By using a second recorder for take-up and supply, larger reels can be used. A final drawback is that interlock is not possible, for the Recorder must sync to the pulses from the quad deck, not the projector. Mixing is not as sophisticated as in 16mm systems, but for the lesser expense involved, many producers might find it worthwhile to take the time necessary to work out their own solutions.

Lab services. The fact that only about three or four film labs offer Super 8 edgenundering facilities while a greater number handle Super 8 A & B rolls illustrates an essential problem. How should material on Super 8 original be released? Are the labs really prepared to handle Super 8? Over the last few years, labs have advanced to the stage where double rank printing is commonly used as a means to supply release prints in Super 8 for cartridge projectors. However, a number of different cartridge systems exist, many of which have different standards of sound displacement and are capable of operating only on their particular projector. Also, cartridge projectors are only suitable for screening by small groups, and double rank printing onto Super 8 is usually only done from 16mm originals. Rarely, a producer might shoot in Super 8, blow-up to a 16mm internegative or reversal master, and then print onto double rank Super 8 for release.

At this time, professional camera stocks are limited by the non-existence of a low contrast stock like EGO. Although it does

exist in double Super 8 format known as SO-425, in 100 ft. lengths, it is not available in 50 ft. or 200 ft. cartridges. According to Kodak, there is no great mechanical problem in mounting EGO in a cartridge. There are other problems. First, it is a slow stock and its ASA of 25 Tungsten, 16 daylight with 85 filter makes it too slow for the notching systems of most Super 8 cameras which usually have a lower limit of 40 (or 25 with the 85 filter). With some expense of increased grain, EGO can be pushed, however to ASA's of 50 or 32. The larger issue seems to be marketing, and because new processing machines that would be capable of handling 50 ft. lengths of Super 8 film would need to be constructed, or present processors would have to be modified, Kodak doubts if the demand for the stock could justify the changes necessary. Finally, before the stock could be released, exhaustive tests would need to be done to assure it could operate in cartridges. EGO is a thick emulsion, and perhaps there would be problems here.

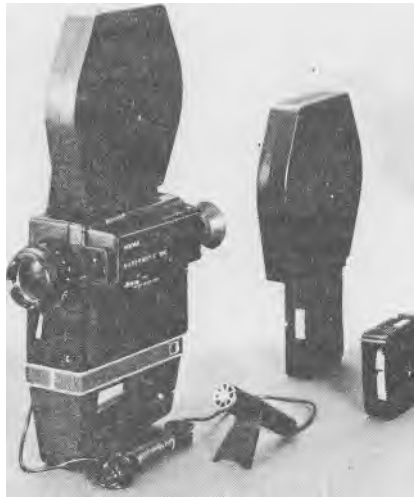
Eastman now lists Ektachrome EF 7242 as the one color professional stock, and the new Ektachrome SM 7244 will join it soon. 7242 appears very grainy in Super 8, and even good prints made onto 7390 or other reversal print stocks exhibit graininess. The new 7244 will have the same ASA as EF, and will be similar in other characteristics with the grain improving slightly. 7244 will be balanced for projection at 5400° K, suitable for TV, so that for regular projection of original a conversion filter would be necessary for proper color balance; and for workprint or release print, an overall color change

	CAMERA	RECORDER	TRANSFER	EDITING	PROJECTION
Optasound	Any camera with PC flash socket and motor interrupt modification	Optasound cassette recorder using 50 ft. Optasound cassette tape. ALC or choice of manual control	Using Opt. editor, transfer not necessary. Striping and transfer service also available. No pulse out for transfer to other system.	Electronic edit of track—no splicing—transfer to mag stripe to complete edit	Any super 8 mag stripe projector.
Leacock/Hamton	Self blimped, crystal driven modified Nizo S-56	Modified Sony TC 124 cassette with Sony ECM mic & crystal oscillator with sync tone. Slating device Uses regular cassettes	Modified Tandberg Model 11 available now. New transfer due to be built. Transfer to super 8 fullcoat	Horizontal table available w/S8 pix and fullcoat.	Modified Bauer T 40 w/ TV or reg. shutter. Interlocks w/transfer for double system projection.
Super 8 Sound	Any camera with PG flash socket or Any camera with Pilotone or Any crystal camera. Barney available for Nizo cameras.	Modified Sony TG 800B reel to reel using super 8 fullcoat to record sync. Digital, Pilotone, or crystal.	Transfer from other recorder possible, on fullcoat, or record original sound on fullcoat in sync.	Vertical bench w/motorized sync block available	Any synchronous projector or projector w/once-per-frame contact switch. Double system or transfer to mag stripe possible.
Single System	Kodak single system or Wilcam single system cameras	Mag stripe on camera with 18 frame advance	Transfer not necessary. Displacement recorder to put into edit sync, or can transfer to double system.	Editors available w/heads in edit or displacement sync. Usual problems in cutting single system.	Any super 8 sound projector
		overlapping arrows signify the same unit			

would be necessary. The emulsion is on a thinner base, and has no rem jet backing for an anti-halation coating. A new processor has been designed to process this emulsion, and with the stocking of this film in all Super 8 single system formats, it seems clear that Eastman is aiming for the TV news market.

For reasons of sound quality, the release format of Super 8 prints is with mag stripe, and the quality of a mag stripe track at 24 fps is better than that of a 16mm optical track. It is best to get prints made onto pre-stripped stock, for this is the most durable stripe, and it is cheaper than striping prints after they have been made. Mag stripes that are applied after a print is made often scrape off after a number of showings, although a new technique in stripe technology has been introduced in which a groove is cut in the film along the stripe edge, and the stripe then sits at the same height as the emulsion. This eliminates need for a balance stripe, along the sprocketed edge. Stripes added after the print is made cost an additional 4¢ to 10¢ per foot. One lab, Newsfilm in Hollywood, Calif. offers 7389 as a pre-stripped stock. This is a special order item requiring a large purchase of stock. Newsfilm has found it unsatisfactory working in the negative-positive format, and does printing in Super 8 from reversal masters. Eastman color print film, 7381, is also available as a pre-stripped stock, but this necessitates printing from an interneg, and this again is usually only done from 16mm originals.

One of the few labs that will handle this type of printing from Super 8 originals is Colburn in Chicago. In the September, 1973 issue of the SMPTE Journal, Robert Colburn described work being done at the lab in this area. A prototype Super 8 continuous contact printer was built to specs which allowed for Super 8 A & B printing, fades and dissolves of limited length, and supers for titles. At the time of the article, no color correction was possible, but modifications were being planned. One problem in managing to add color correction to Super 8 prints is the printer must move at a slow enough speed to allow for changes. As the printer slows down, the cost of printing goes up with the increased time necessary to make a print. With this printer, Colburn is able to go to Super 8 double rank internegatives from Super 8 originals. This is without a liquid gate, however, and Colburn has also done work with a Super 8/16mm optical blow-up printer that incorporates a liquid gate. The article went on to say that excellent quality prints could be made direct to 16mm release stocks, and also that one could go to 16mm ECO for cutting in with 16mm original of the same stock; or one could go to a 16mm interneg for positive release printing in 16mm. In printing from Super 8 originals, quality can vary depending upon the original used, and the condition of original at printing time. Cost is ultimately less than in 16mm, for here, a 12-



Kodak Supermatic 200 camera and mic. with 50' and 200' mag stripe cartridges.

minute Super 8 mag stripe print with sound transfer from a double rank interneg costs about \$19 per print, in multiples of two.

The article concluded, "...Super 8 as a production tool is here now and...laboratories must prepare themselves for supplying professional prints for the professional super 8 producer." A recent article in *Super 8 Filmmaker* listed 18 film labs that would handle super 8 A & B rolls, certainly an indication of the willingness of labs to expand in this area. Consistent quality seems to be the main problem, and this is probably due to lack of equipment built exclusively for Super 8. Much of the equipment is built from scratch, or modified. A major problem still seems to be the camera stocks themselves. With only 7242 as the only professional stock, problems of contrast and grain can be serious.

Super 8 to video. Another release format that offers exciting possibilities is video. Kodak manufactures a projector which has a five bladed shutter and is intended as a Super 8 film chain projector. Known as the TV M 100 A, it is the same size as its counterpart in 16mm. The Hamton system is delivered with a Bauer T 40 projector which has an interchangeable five and two bladed shutter, and so can also be used for a film chain. Other Super 8 film chain projectors are made by Wilcarri. Many of the films produced on the Hamton system at MIT have been directly transferred to 1/4" video cassette. While I was at MIT, all the films I saw that were produced on the system were shown to me over an IVC video cassette player and Sony Trinitron monitor. The quality seemed good, and with nothing shot in 16mm to compare it with, all films appeared fine. The tapes I viewed were transferred with a simple film chain set-up involving telecine projector with double

system soundtrack and one color camera. Two of the firms I contacted reported using this kind of set-up; Rombex Production Co. in New York reported being able to do one overall color change. Boston Transfer, in Newton, Mass. had just installed an image enhancer in their system.

Image enhancement seems to be a key to improving quality in Super 8 transfers to video. It is an electronic means of increasing sharpness between a film and video transfer. Because video scans horizontally, a scan line can sometimes misinterpret an edge or lack of an edge on a filmed image. The enhanced image is a way of storing bits of visual information and then making a compromise as to its sharpness. One other firm I contacted, National Recording Studios in New York, described a very elaborate system which also included image enhancement. Alan Rogers talked about using a film chain projector which looks into a dichroic mirror set-up, as on an additive printer, such that the film information was sent to four cameras—one each for the red, blue and green portions and a fourth b&w camera which superimposed a high resolution image over the resulting color mix. This, with the image enhancement, leads to a Quad (2") video master of high quality, and this master can later be used to transfer to other video formats. Although the initial expense is high, video dubs from the master are comparatively inexpensive and of good quality. Another benefit in going this route is that scene to scene color correction is possible, as is electronic editing of the master for live inserts and titles.

There is now at least one TV station using Super 8 exclusively for new footage, KDUB of Dubuque, Iowa. Under the direction of Chuck Cyberski, the station has been experimenting for two years using Super 8, and has also been publishing a monthly newsletter originally called *Super 8 Research News*, now called *Video/Film News*. They, too use image enhancement on Super 8 film shown over the station, and report that with the image enhancement, it is very difficult to tell the difference between 16mm and Super 8. Additionally, they point out that when working in 16mm, loss or waste after editing was 40% of the film that was shot. In Super 8, the waste is down to 15%—a result of the lighter cameras requiring less set-up time. Finally, they state there is no compromise in quality using Super 8 now that necessary modifications have been made. More information can be found, again, in the September, 1973 issue of the SMPTE Journal.

Other TV productions have used Super 8. Part of NET's *An American Family* was shot in Super 8 using an early version of the Hamton system. In this case the sound transfer was done on 16mm, and editing done on a Super 8-16mm Steenbeck. Portions of a WGBH, Boston show, *Where*

The professionalization of Super 8

to Get Off In Boston are being shot with Super 8. It has been said that both 35mm and 16mm "overkill" the TV format with too much information. Even Super 8 is capable of better resolution than television, although image enhancement is necessary.

With more and more video cassettes being used, and with the expected release of video discs, Super 8 seems a viable way

to produce for this medium. Leacock believes that Super 8 will mainly be released in a video format, citing difficulties in consistently obtaining good prints, and also pointing out what most projectors do to prints as they are being shown. He feels there will be a need for Super 8 prints from Super 8 originals, but that this will only be available from a few very specialized labs. Certainly for the smaller film producer, or the smaller company that cannot afford a 16mm production, Super 8 offers exciting possibilities. With increased Super 8 production, many of the annoying situations involved in producing in Super 8 will probably improve. The improvement and change since last Spring when both the Leacock/Hamton and Super 8 Sound Systems were introduced is already immense. It seems only a matter of time before Super 8 will have its own standards. ██████████

ADDRESSES OF FIRMS MENTIONED

Boston Transfer
120 Wells Ave.
Newton, Mass. 02158

Geo. W. Colburn Lab, Inc.
164 N. Wacker Drive
Chicago, III. 60606

Eastman Kodak Co.
Rochester, N.Y. 14650

Hamton Engineering
735 Providence Highway
Norwood, Ma. 02062

MKM Industries
PS Box 313
Skokie, III. 60076

Moser Development Corp.
10751 Chandler Blvd.
North Hollywood, Calif. 91601

National Recording Studio, Inc.
National Video Center
730 Fifth Ave.
N.Y., N.Y. 10019

Newsfilm Laboratory, Inc.
516 N. Larchmont Ave.
L.A., Calif. 90004

Optasound Corp.
116 John St.
New York, N.Y. 10038

Rombex Production Corp.
245 W. 55th St.
N.Y., N.Y. 10019

Super 8 Sound
77 Huron Ave.
Cambridge, Ma. 02138

Wilcam Photo Research
8619 Yolanda Ave.
Northridge, Calif. 91324