

## Color News Film, 1965-1975

By Sheldon Nemeyer

*During a short ten-year period, data tends to get lost or seem unimportant. This is contributed as a historic review of a short, fast-changing period, as seen by a former manager of the Newsfilm Equipment and Lab at NBC-NY.*

Newsfilm started out in the late 1940s with 35mm black-and-white film and later shifted to 16mm black-and-white magnetic sound stripe film. This description is specifically about the shift from black-and-white to color news film during the ten-year period from 1965 to 1975.

The two basic pieces of equipment were the Bell & Howell (B&H) spring wind 100-ft handheld camera and variations of the Auricon single-system magnetic sound camera. The silent 100-ft B&H generally was used with a few modifications to improve reliability. Filter slots were cut in the body to accept gel filters, variations in springs gave longer runs, and NBC's Dave Benton came up with a backlash clip that saved film and loop loss.

The Auricon camera was modified by a number of manufacturers, but basically the top of the camera was sawed off and fitted to accept 400-ft and 1200-ft Mitchell magazines. The camera required 110V AC or 110V-AC power pack and an umbilical cord to a sound amplifier in a separate case. It was a heavy load, about 50 lb.

As time went on, motors were replaced by crystal-controlled DC motors. This reduced battery weight and led to cameras with self-contained batteries. Eventually, sound amplifiers were built into the camera with manual and automatic gain control (AGC). The weight of a complete sound camera without umbilical cords was reduced to 13 lb. Both Frezzolini in the east and Cinema Products in the west took the lead with their CP-16, with excellent results.

In August 1965, at NBC, we had completed a series of tests with Ansco

and Eastman Kodak reversal color films. The addition of magnetic stripe to film seemed to be no problem. The tests were shown to the executives in the viewing room at NBC-NY. At the conclusion, everyone walked out without comment. I noticed that Eastman Kodak stock went up each day for three days.

By the end of the week, the Newsfilm Department was asked to install an ME-4 processing system. Filmline could build small units and was the most experienced. The first unit was delivered and installed by December 1965; other lab units were ordered for Chicago, Los Angeles, Washington, and Cleveland. By the end of another 12 months, ME-4 processing became available in many places in Europe and Asia.

Within a few months, NBC was buying film at the rate of 24 million ft of film a year. New York was processing about 6 million ft, Los Angeles about 4 million, and the remainder was done in outside laboratories.

The first year saw two severe problems that were, fortunately, quickly solved. In the Auricon camera, the film would slide down when the film claw was withdrawn so that the loop was lost. The motor would continue to pull the film through the gate. It was found that the color stripe film was slightly thicker than the black-and-white film. The upper loop, when bent and threaded in the gate, exerted spring pressure downward. When the claw was withdrawn, the upper loop was lost.

Auricon solved the problem very quickly. It was called the "three roller path modification." The rollers could be installed in less than 5 min by screwing the plate into existing holes. The modification merely formed a bottom loop of the same size, so that the upward pressure was equal to the downward pressure. The rollers were

manufactured and distributed to all camera crews in the U.S. and overseas bureaus and installed in less than one month.

The next problem with color sound stripe film earned the name, "The Mystery of the 24-Frame Click." At NBC, 100 to 125 film crews around the world were sending color magnetic striped film into New York. Nearly all the film had clicks, whether it was processed in New York, other NBC labs, or commercial laboratories. With the help of Eastman Kodak, we finally located metal in a processing machine roller. By running a foot of film over a roller we could read and hear a distinct click. It was possible to solve the problem by turning the roller over, but it made more sense to check every roller, find the offenders, and replace them. This was done by running 100 ft of magnetic full coat film through the processing machine, section by section, until the offenders could be located.

How did metal get in the rollers? Apparently the plastic raw material was pelletized. In the course of chopping the material into pellets, there was no need for a clean-room atmosphere or for sweeping metal debris that might mix with the pellets. In any event, with the problem detected, the remedy was easy.

In the transition from black-and-white to color with more critical exposure settings, a solution was needed for ASA meter settings. In all the film exposed at NBC, exposure was rarely a problem. With black-and-white film the cameraman could specify, "Develop to a gamma of 0.68," if he already knew the lab's aim point and the equivalent exposure index to use for meter settings.

In color film the speed was ASA 125 for Type 7240 tungsten balance and 80 with an 85-filter in daylight. A card was printed with the film speed for Normal, Force 1 stop, Force 2 stops, and Force 3 stops. This eliminated early-exposure confusion on the part of the cameraman and the receiving lab.

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## HISTORICAL NOTE

The laboratories had densitometers and Eastman Kodak pre-exposed sensitometric strips. This helped to keep the machines within control. Actually, it provided little useful information. The chemical system was so good that nothing had to be done except to adjust replenishment rates.

Better than the above technique was the use of a woman's face. A model was placed before a camera and 1200 ft of exposed film. The film was respooled into 100-ft cans and put in a freezer. On each run of the lab a piece of the film was stapled in. After viewing on a light-box with all the previous strips, side-by-side comparison was more accurate in detection of color shifts.

Another problem less easy to solve was the color deficiency of the viewer. Nobody is color blind but male deficiencies do exist, with some people having better color discrimination than others. This was handled on a one-to-one basis with each suspected person. A fast test was offered — if the person agreed and was found to be deficient, the complaints ceased.

As time went on, the camera equipment became lighter and the film improved in sharpness and latitude. It was similar to the age of the clipper ships, whose speed is hard to exceed even today — but the steamboat was on the horizon. We all knew that tape had to take over eventually and it was

about 1975 that the inroads began. It was starting all over again, with heavy power packs, heavy cameras, and umbilical cords to a sound recorder.

That, of course, has decreased each year. It is now 1994, and both picture and sound on news programs show no great quality improvement.

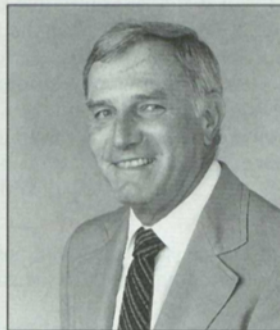
Newsfilm was always fighting time — time for a courier to get film to a laboratory, processing time, and editing time. The shift to video cameras eliminates film-processing time. Small portable transmitters can eliminate courier delivery time, and satellite transponders can allow origination from anywhere in the world directly to the viewer in real time.

### Call for Papers

## The 136th SMPTE Technical Conference and World Media Expo October 12-15, 1994 Los Angeles Convention Center, Los Angeles, Calif.



Howard T. La Zare



Frank J. Haney



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A Call for Papers for the 136th SMPTE Technical Conference and World Media Expo has been issued by SMPTE Editorial Vice-President David L. George, Imagineering Ltd. The event will take place at the Los Angeles Convention Center from October 12 to 15, 1994.

Authors who are interested in presenting papers at the conference must submit their names, company affiliations, phone numbers, and a 500-word synopsis of their papers to Editorial/Program Coordinator

Marilyn Waldman at SMPTE Headquarters, 595 W. Hartsdale Ave., White Plains, NY 10607; Tel. (914) 761-1100; Fax: (914) 761-3115. This information must be submitted by May 27 on forms provided by SMPTE Headquarters. No papers will be accepted after the May 27 deadline.

Program Chairman Howard T. La Zare, FilmTec International, has announced the conference theme of *The Digital Era...Ready or Not*. Papers should address various facets

of this topic. Assisting Howard La Zare in supervising the technical program will be Program Vice-Chairmen Frank J. Haney, Fox Television Stations; and John L. Baptista, Consolidated Film Industries.

In addition to the papers sessions, a full calendar of social events will be available for the enjoyment of conference registrants and their partners. Further details will be given in future issues of the *Journal*.

— Joyce R. Hurwitz