

# Chicago Section Holds Ninth Annual All-Day Meeting — May 12, 1984

By Ann Brack

Technological advances in film and video beneath the sea, through the air, and in the editing suite, were among the subjects explored at the SMPTE Chicago Section's Ninth Annual All-Day Meeting, held May 12, 1984. An audience composed of engineers, producers, and directors listened to presentations such as "Aquacolor Underwater Cinematography," "The Skycam Camera Control System," and "The Envision Post-Production System," among others.

*Aquacolor Underwater Cinematography*, a film presentation produced by Mr. and Mrs. Tuckerman Biays, Aquacolor Pictures, Key Largo, Fla., opened the program. The film represented 17 years of work on a unique underwater 16mm camera, specially adapted to light conditions beneath the sea and capable of capturing spectacular color footage. In the opening portion of the film, the narrator explained that it had been shot at depths of 20 to 40 ft underwater with a visibility of 20 to 30 ft.

Until the innovations brought about by the Aquacolor camera, filming underwater had rarely produced spectacular results. Underwater photographers have asserted that nowhere on earth is there any setting more col-



Committee members: (L-R) Paul Markun, Jack Behrend, Kenneth Knaus, Michael Bailey, George Halonen, Norman Thelen, and Harold Miller.

orful than a coral reef. But, because the ocean acts like a massive blue-green filter, its rich store of color had previously been impossible to capture on film. The challenge and concept which the Biays pursued was to remove the "graveyard effects and use the maximum effects of light underwater," allowing the full beauty of the colors to come through.

Experimenting, over the years, with a variety of exposures, the Biays gradually determined the correct light-levels for underwater exposures and developed computer-generated filters to be incorporated into their camera. "In the sea, light fluctuates with the passing of each wave overhead," the film's narrator explained.

Such spontaneous variables require a computer-based, automatic metering system with great speed and response. The automated camera frees the underwater photographer of purely mechanical functions. "Things happen fast underwater and are over just as fast. This system keeps frustration low and productivity high. The cameraman can concentrate on composition," the film explained. The Biays also designed a housing for the camera that weighed only 42 oz on land, or 2 oz in sea water.

Cinematographers using the Aquacolor camera system are cautioned to work closely with lab timers, who may not have been aware of the rich color existing underwater. The

Ann Brack is publisher/editor, *First Take*, Chicago, IL. This report was received June 11, 1984. Copyright © 1984 by the Society of Motion Picture and Television Engineers, Inc.



Program Chairman Kenneth Knaus introduced the speakers.

## Chairmen Chicago Section's Ninth Annual All-Day Meeting

*General Chairman:* Norman Thelen, Encyclopaedia Britannica Educational Corp.

*Finance and Assistant Chairman:* Paul Markun, Skylite Communications Inc.

*Program:* Kenneth R. Knaus, Eastman Kodak Co.

*Publicity:* Donald Henderson, Eastman Kodak Co.

*Sponsors:* Roland Johnson, Eastman Kodak Co.

*Registration:* Harold Miller, Bell & Howell Video Systems

*Film and Video Presentation:* Jack Behrend, Behrend's Inc.



Norman Thelen, chairman, Chicago Section.

Biays worked closely with Continental Labs, Miami, and with Eastman Kodak. The resulting film footage looked as though it had been filmed above water rather than as deep as 60 ft under the sea. "Color is definition. This camera can see better than the diver who uses it," they said.

Putting color and financial life back into old black-and-white movies is the aim of Colorization®, explained Wilson Markle, Mobile Image, Inc., Toronto, Canada. This is a process which reproduces black-and-white film on color videotape. Examples shown included clips from *Topper*, a 1937 film starring Cary Grant, Constance Bennett, and Roland Young, and *Broadway Melody* (1940) starring Eleanor Powell and Fred Astaire. Markle estimated that of over 17,000 black-and-white films in the U.S., 14,000 would be suitable for Colorization, and of 30,000 black-and-white foreign releases, 12,000 could effectively be Colorized.

It is, however, an expensive procedure. The price depends on the volume and complexity of the job, but Markle quoted \$2,000/min, or an overall estimate of \$250,000 to Colorize a full two-hour feature. A good art director is necessary to effectively translate the atmosphere of a black-and-white scene into color, taking into consideration such factors as time of day, background, and continuity. Sometimes information is hard to obtain, such as the color of a star's eyes in the 1930's, Markle said. Makeup, with its subtle colors, is the most difficult, and wardrobe colors have to be designed.

In the Colorization process, the film is transferred to 1-in. Type-C format and a 3/4-in. work copy made. Shot lists

are prepared and color assignments discussed. Budget restraints may dictate how much Colorization is done. Flicker and scratches that are tolerable on black-and-white film become more apparent on a color copy. But despite the problems and the expense, studios still find it a valuable option. "Some films are not worth distribution until Colorization," Markle said. Screen credits are sometimes given for Colorization, although there are "some clients who don't want it known that (the film) was Colorized," he noted.

Donna Foster-Roizen, Aurora Systems, San Francisco, Calif., made the third presentation, "Video Graphics Go to the Ballet." Foster-Roizen said she anticipates more use of digital computer graphics as complements to the performing arts. As part of her lecture, she projected a



William Smith, morning session chairman.

moving montage that had originally been designed as a backdrop for the San Francisco Ballet. The video incorporated chromatic, kaleidoscopic effects that dissolved into a blue tunnel, from which "dancing" geometric figures flew, moving in circular patterns.

Jack Behrend, president of Behrend's Inc., Chicago, and Bruce Rady of Synervision, Inc., then unveiled a project that had been under development for four years called Envision. This is a new off-line video editing system that provides individual editors with the flexibility of film editing and convenience of video. Behrend said that inspiration for Envision developed out of the split he saw between film and video editors. "An editor is an editor," he said, "but

film people like to keep their hands on their editing projects." Video systems tend to be complex, two-person systems, in which one person explains what he wants done while another person pushes the buttons, Behrend said. Envision attempts to cut out the middleman.

Envision combines the instant viewing and approval capabilities of tape with the audio accuracy and flexibility of film. It also enhances an editor's creativity by reducing cost pressures, Behrend noted. Film, narration, music, and sound effects are all fed into the system on videocassettes, he said. An editor makes his edit decisions on the system's touch screen, recording them on floppy disks (capable of being plugged into an automatic assembly process), or listing instructions on a printout to take into a final studio edit session.

Bruce Rady, designer of Envision, explained that Behrend had decided on what the system was to do and that he, Rady, planned how the system would make it work. The advancements of microprocessor technology and high-resolution CRCs have helped make their dream a reality and so have the services of laboratories which transfer negative film to tape, Rady said. He assured the audience that editing on Envision can be learned very quickly. Envision will initially be released by Synervision in VHS 1/2-in. as well as 3/4-in. formats.

Richard Sehlin, group leader of Eastman Kodak Co.'s Photographic Technology Division, Rochester, N.Y., projected dozens of exposure samples to illustrate points in his presentation "Choosing Eastman Color Negative Film 5247 or Eastman Color High Speed Negative Film 5294." Expo-



Morris Bleckman, afternoon session chairman.



SMPTE Executive Vice-President Harold Eady, luncheon speaker.

sure, lighting, and a desired cinematic look are the most important factors in choosing between the two films, Sehlin said. Graininess, or nonuniformity, is another subjective variable, he noted. Underexposing either film increases granularity, while increasing exposure of either improves sharpness, Sehlin said. Generally, 5294 is most effective for low light-levels, and 5247 is most effective for high light-levels, he said.

Using one set of exposure samples, Sehlin discussed sensitometric curve variables. Footage of a girl in a brightly lit room with a 10-to-1 sensitometric curve was compared to footage of a doorman seated at a phone under a lone bright light in an otherwise dark backstage hallway, with a 100-to-1 sensitometric curve. Underexposing the 100-to-1 brightness situation made the scene look murky and suffer loss of detail in the shadows. Overexposing that same scene made the blacks look blacker, whereas under- or overexposing the 10-to-1 brightness scene of the girl made little difference in the look of the scene.

In another set of exposure samples, Sehlin showed footage of two girls dressed in white tennis outfits standing in front of a white wall, a high-light, high-brightness situation that 5247 appeared to handle well. On film 5294, the whites looked muddy. He advised using 5247 film in such situations to preserve neutral skin tones and maintain a crisp look.

To demonstrate the choice of film to provide a mood, a comparison of the two films was made with scenes of checker players on a shaded porch.

The scenes shot with 5247 footage had a soft look, while the 5294 footage showed increased color saturation and sharpness as well as denser shadows.

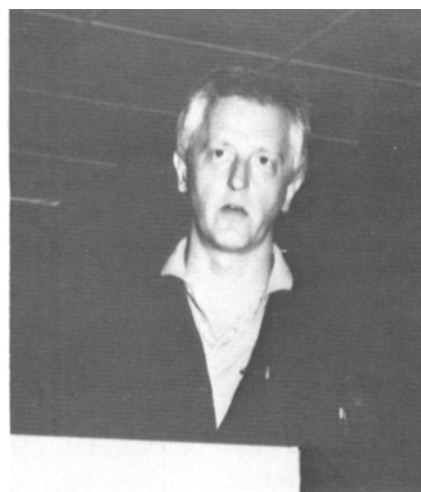
An especially impressive presentation was Garrett Brown's "Skycam: The Flying Camera." Brown, the inventor of the Skycam and Steadicam, and chairman of Skyworks, Inc., Philadelphia, showed footage shot with his latest invention. Skycam renders awesome overhead perspectives of a race that starts directly above a group of runners, travels with them the length of the field, and is capable of dropping down to eye level for closeups as they approach the finish line. Brown told the audience that the system is particularly suited for wide-angle treatment of sports events because it can get in closer than traditional camera setups, say 20 to 30 ft in the air over the shoulder of a quarterback. The Skycam affords the types of perspectives cameramen dream about. "Bird is not the word," Brown said. "it's like having your own aircraft."

Brown's inventions grew from meager beginnings. As owner and producer of a small film company, he said he never relished having to lay out 100 ft of track and a dolly for a shot. Development of the Steadicam gave him more control and "eliminated the distinction between the cameraman and the guy steering you."

The Skycam is a system of four pulleys with 1200 ft of Keplar cable on each, clipped through gimble rings on four spars. A Panavision video camera weighing only 6 lb is suspended from the center of the cable system. Brown quipped, "It's the lightest camera in the world, made out of a log of hydrogen. . . . You have to be careful if you let go of it." Signals are beamed from



Wilson Markle, author.



Garrett Brown, author.

the camera 300 times/sec with a microwave transmitter. The camera's weight is balanced and centered so the camera stabilizes itself while suspended from the cable system. The cables are attached to four 2-hp motors with a maximum pulling capacity of 80 lb.

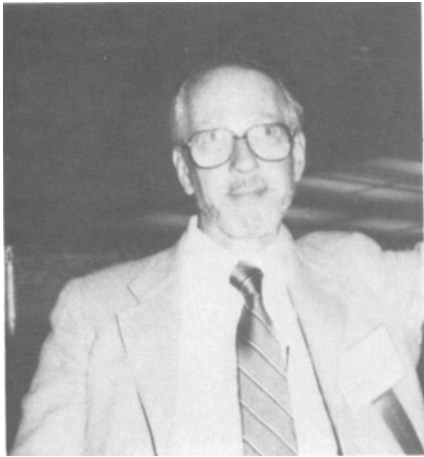
The operator seats himself in a vantage point and moves the camera laterally and up and down with a joystick. A computer accordingly determines the size of space the motors and cables need to move to the camera within the next  $\frac{1}{16}$  sec.

The Skycam is "a bit like the way they made Mary Martin fly in *Peter Pan*," Brown said, "but instead of stagehands, we use motors and computers." He added, it turns camerawork into a great desk job, with the computer able to memorize a move and repeat it precisely, time after time. The system's maximum speed is 25 mph. It has a lower boundary of 5 ft that the computer won't transgress, if programmed that way. Otherwise, an operator could literally set it down "on the deck."

The Skycam system can be set up to operate in a space  $1000 \times 1000^2$  ft  $\times$  200 ft in height. (A general rule of thumb for height is 25% of the width of the space you're in, Brown cautioned.)

Theoretically, the system is accurate to the centimeter in a space the size of the Coliseum. In practice, Brown said, he can get the camera back to a starting mark within 4 inches.

Stabilization of the camera is a big concern, whether on a street location or shooting over a sports stadium. Wind, camera gyrations, and tension on the gimble rings need constant monitoring. "We have yet to determine



Jack Behrend, author.

what athletes think of it," Brown said. Keeping the camera out of their sight line and the cables out of the way during play are major concerns. Public safety is a concern to local fire departments, regarding whether permission should be granted to set up the system in a stadium. Their greatest fears are of the possibility of camera, cable, and pulleys falling on spectators.

Brown said his crew transports the equipment in a large van. If the pulleys and motors are already in place on location, the system can be set up in 1 hour. If his crew needs to place poles, pulleys, and the heavy motors as well as camera and cable, set-up time could take as long as 2½ hours. Most of that additional time would be required just to carry the heavy gear to the right places in a large arena.

The system can work on two wires, if conditions are not terribly windy,

and three wires work especially well for baseball spaces, Brown said. His company will be offering seminars in the use of Skycam, beginning in the summer of 1984.

Sherwin Becker gave attendees three production commandments: "Rust is cheaper than silver;" "Thou shalt not work in the dark if thou can work in the light;" and "If thou goof it up on tape, thou can shoot it over again."

That bit of video levity introduced Becker's presentation, "An Integrated Post-Production System for Film Origination and Video Release." Becker, vice-president and director of engineering, Allied Film Lab and Video Services, Detroit, noted that film and video people have increasingly borrowed technology from each other in recent years. He confided that his personal preference is film, and feels that until video looks like film, the demise of film is a long way off.

These days, however, many producers opt to shoot on film and release on video. Becker's presentation advocated a post-production system that integrates both. With video services now available in labs throughout the country, Becker said it makes sense for producers to edit on film and conform on tape. He suggested that an editor make rough tissues for title positions, saving the precise title work for a character generator on the video side of the lab. Editors can take advantage of computerized video systems to conform visuals, with the addition of a variety of special effects. By employing the use of video transfers in this manner, video copies can be kept much closer to first generation. "This makes



Donna Foster-Roizen, author.

the transition we're looking for at the right point with each system," Becker said.

Dr. Clay Barclay of Crown International, Inc., made the session's final presentation: "PZM Microphones." He explained that pressure-zone microphones (PZM) enable shaping of pick-up patterns to many special situations.

One PZM, made of a 2 x 2 ft<sup>2</sup> piece of plexiglass, picks up sound from a directional half-sphere area, particularly suited for stage applications, Barclay said. Three PZMs on a Disney World stage took the place of six to seven other microphones.

Other PZMs demonstrate the ability to be understood over long distances, with a greater "reach" than a shotgun microphone. Another design, well suited for street reporters wanting to restrict street noise, is a PZM able to achieve 20-dB rear rejection of background noise when the microphone is held in the proper direction. Because PZMs can be shaped differently, they have various applications. "They are not a replacement for other microphones, but a good supplement to your collection," Barclay said.

A special event of the all-day meeting was the presentation of awards to those section members described by Chairman Thelen as "the unsung heroes" of the Chicago Section. Plaques were presented in appreciation for their consistent behind-the-scenes efforts for the section. Those present to receive the awards were: Jack Behrend, presentation chairman; Donald Henderson, membership chairman; Kenneth Knaus, program chairman; Scott Kieffer, a manager; Harold Miller, a manager; Robert Pittluck, test materials advisor; and Richard Stevens, arrangements chairman.



(L-R) Attendees Edward Blasko and John Ehrenberg with SMPTE President Leonard Coleman.