

Reflections on the 12th Montreux Symposium

By JOSEPH ROIZEN

The 12th International Television Symposium and Technical Exhibition was held in Montreux, Switzerland, from May 30 through June 4, 1981. There were many more exhibitors, but notably fewer from America. Over 2,000 delegates from 56 countries made the pilgrimage to this lakeside resort. While technical papers were down, the growing popularity of round table discussions pushed this activity to a new high of 13, well over the eight held in 1979 or the two in 1977. There was also a sharp increase in visitors to the exhibition — 12,000 this year, which was well up from the 7,000 of two years ago.

Like NAB '81, which preceded Montreux by about six weeks, this was also a selling show, with few laboratory prototypes or "blue-sky" hardware on display. Not a single digital VTR was shown. This is in marked contrast to the fact that Ampex, Fernseh, and Sony all had experimental digital VTRs on display at the 1979 Symposium.

Another carry over from NAB was the display of highlighted products, some still in NTSC format in this PAL and SECAM dominated area. RCA managed to convert its Hawkeye camera/recorder into a PAL/SECAM unit, while Sony showed its Betacam camera/recorder in its U.S. version. Two other NAB hits, the Ampex digital video effects unit and the Thomson Broadcast Vidifont Graphic V, made it to Montreux, but demonstrated their capabilities in NTSC — the 625-line, 50-field version will come later.

A second charge-coupled device telecine appeared, this one made by Marconi, to challenge the Bosch/Fernsch unit that has revolutionized this field in the last few years. There were really no technical surprises at the exhibition, although the papers presented did delve into the technologies of the future, especially regarding high definition TV, satellite communications, digital video, and teletext.

AUTHOR: President of Telegen, based in Palo Alto, Calif. Illustrations are by Donna Foster-Roizen, a free-lance photographer based in San Francisco, whose work frequently appears in the *SMPTE JOURNAL*, as well as other technical magazines.

In summary, Montreux was essentially a PAL/SECAM equipment show and conference — a combination of the NAB and the SMPTE Television Conference in San Francisco. Most important was the fact that the delegates came from the widest range of television services around the world, often representing broadcast organizations which had not participated at NAB. It was, in fact, a new audience very interested in the latest technical developments and concerned about staying abreast of the accelerating technology.

The Opening Round Table

The Montreux Symposium started off with a major event, a round table discussion that placed a group of noted manufacturers' representatives on the same dais

with a prestigious array of broadcasting authorities. This tradition of confronting the TV equipment producers with the users of that hardware has proved popular in the past, and again attracted a large audience to the Pavilion in front of the Montreux Palace. Chaired by Joseph Polonsky of Thomson-CSF, the discussion started with some opening statements by each panel member. Mr. Polonsky began the discussion by stating that TV broadcasters are facing a new era of competition from the many forms of video signal delivery that are now proliferating. He cited the already great impact of cable television, and the rapidly growing effect of pay TV and home VCRs. In the future, videodisk and direct satellite broadcasting will also penetrate viewers' homes and diminish viewing time that is currently allocated to TV broadcasting.



General view of Maison des Congrès and the entrance to the exhibition hall.

Sony Betacam single piece camera and recorder for ENG applications, which was shown for the first time in Europe.



have to be carefully considered. While technical innovation is attractive, it must be remembered that the TV industry is also straining to give an honest return to the stockholders.

At the end of Mr. Hittinger's presentation, Mr. Polonsky opened the session for a discussion between panel members, starting the dialogue by asking how the home viewer might use the improved technology available in a positive way. There were some interesting comments from panel members: Mr. K. Teer of Philips predicted that home viewers will set up an entertainment center around a large-screen home "theater," which would be the focal point of television services. Charles Steinberg of Ampex emphasized that the key word to future television was "interaction" — the viewers will interact with their multi-use TV sets to get the extra services offered, like teletext. At the same time, Steinberg expects the standards to remain what they are today. Henrikus Jushkevitch of Soviet TV saw future television services as a means to accommodate work at home for scientists, writers, and other professionals. He did not expect an "entertainment center" to develop in the home, but suggested that what is really needed is an inexpensive system for delivery of TV signals that can be used for educational purposes. Bryce McCrerrick of the BBC agreed that people will not necessarily watch more TV in the future, but will have a greater choice of programming. As a broadcaster, he felt that the quality of programs must be kept high. On the technical side, he foresaw a shortage of frequency spectrum space, and felt that attention must be given to making better pictures on current sets. Mr. Remy added to Mr. McCrerrick's remarks by saying that surveys in France have shown that the major interest among TV viewers is in recent films. He felt this may be due to two

The first speaker, Prof. Ulrich Messerschmid of the IRT (Institut für Rundfunktechnik), gave a review of the peripherals that can attach to a TV receiver. He felt the home videotape recorder would remain more popular than the videodisk because of its inherent ability to record programs. He was also impressed with the electronic telephone directory experiment in France, but cautioned that future teletext and viewdata services would not lead to blocking out the home TV receiver for the single use of a particular family member. He did not expect TV viewing hours to increase, even if more programs were available.

Maurice Remy of TDF (TeleDiffusion de France) approached the question of rf (radio frequency) distribution of television signals. He expects the 12 GHz portion of the spectrum to be heavily exploited for direct broadcast by satellite (DBS) and for digital transmissions. He predicted that small, parabolic, satellite receiving antennas for the home would cost about half the price of a TV receiver, and homes would start equipping themselves with such devices in a few years. The digital transmissions, Remy proposed, would deliver teletext and programming to homes equipped with special receivers and microcomputers. There are many home applications for television in the control of household activities, including remote recording signals, heating and air conditioning, security systems, and health-alarm devices. Remy felt people would be willing to pay for such extra services as add-ons to existing free services now available.

William Hittinger of RCA covered the TV receiver side by stating that digital in-

tegrated circuits will play a major role in improving the home TV set of the future. He feels that display systems will get better, that projection TV will increase in importance, and that the flat-screen TV set will be available at the end of this decade. Improvements will also come from picture enhancement techniques, deghosting circuits, automatic black-level control, and other circuit developments. Hittinger warned, however, that any change in standards should be "backward compatible," that is, they should not make current sets obsolete, and that the cost factors will



SMPTe booth in Montreux, showing Pablo Weinschenk-Tabernero at work.

factors: first, that the quality of such films is very good, and second, that these programs are generally well promoted on the air.

Joseph Flaherty of CBS agreed that his network, as well as others, faces more severe competition in the future from the new devices which have broken the previous technology barrier. These new techniques, Flaherty said, provide much better possibilities for the viewer. However, what is needed is not more new inventions, but a new view of the human side of television viewing and its needs. The program choices of the future will go well beyond entertainment, and it will be up to program producers to meet these new demands. Mr. Polonsky interjected the comment that, instead of current competition for mass audiences, there will be specific programming for everyone. Mr. McCrerrick added an illustration of this principle by informing the audience that the BBC already has plans to start a new program for people who want to learn about small computers. The program includes a microcomputer and learning materials, in both over-the-air and print form.

During the discussion which followed, Geof Mason of NBC brought up an important point — he asked when the television equipment manufacturers will start making equipment which permits the audio signal quality to catch up with the video. Mason claimed that on his network operations, good sound was an important element in overall sports broadcasting. Several panel members took issue with Mason, stating that good audio quality was already available if people really wanted it. Hans Groll of Bosch/Fernseh pointed to the fact that two-channel, FM sound is already on the air in Japan and on the NHK TV network, and that the ZDF network in West Germany is about to start such broadcasting. Dr. Messerschmid added that the advent of DBS will also bring the possibility of digital sound reception to the home via satellite. Mr. Castani of RAI suggested that technology must cater to what the audience wants. People who go to the theater want to be passive observers; they may also want their TV at home to be passive, rather than interactive as is being proposed. Mr. K. Teer commented that the new technologies will not eliminate the old, and that many systems will exist side by side.

Mr. Polonsky led the discussion into the area of high definition television (HDTV) by posing the question as to whether this new technology would be utilized in a different way, or would it be used in the same applications as previously. At this point, Donald Fink, chairman of the HDTV Committee, took the floor to explain that not enough was known about the psychophysical aspect of high resolution TV. He proposed that the marketplace should not make the decision in the success or failure of HDTV, but rather that more work must be done by HDTV proponents and manufacturers to create a good system that meets user requirements. He admired the

work done by NHK Research Laboratories in Japan, and wished that more countries would get involved in such research. K. Teer responded that NHK was, indeed, not the only company doing research in this field.

The panel presentations resumed with Joseph Flaherty of CBS leading off with some statements regarding current problems facing broadcasters. He questioned the definition of a high resolution TV standard, especially regarding parameters. With increased programming demands, how do you determine what the public wants? Most people seem to want general programming, so the high audience numbers support the cost of production. With narrowcasting, the cost of producing programs for fewer users becomes a serious obstacle. Flaherty pointed out that major events, like the Olympic Games, are very expensive to produce and will continue to be so. However, the cost per thousand viewers is reasonable because of the huge audience. The real problem is to reduce this "cost per thousand" factor for smaller groups. There is also a limited talent pool which is presently being called upon, not only to do normal programming, but also to create alphanumeric and graphics for teletext and other services.

Technological limitations are being broken regularly. Digital techniques will improve quality through all phases of production and post-production. Small VTRs are getting better, as are other TV devices. The question of how we feed all of these new electronic systems — by film, by electronics, by lasers — must still be pursued for comprehensive answers.

Masahiko Morizono of Sony Corporation addressed his remarks to the questions of digital TV standards, and to some future capabilities of TV products not yet on the market. Morizono maintained that full-scale digital quality at a 4:4:4 or 4:2:2 hierarchy requires a packing density of 400 to 500 megabits. New technology will be needed to achieve this, including new head structures for recorders and new kinds of tape. To go with this increase in packing density, it would be desirable to have more compact machines and higher speed large-scale integration LSI chips. Morizono philosophized that everyone wants these things today, but this is too early, and tomorrow is considered too late. He would like to have that day in between to achieve these goals.

Morizono also predicted that a write/read/erase videodisk will be introduced, which will be a very good tool for video editing and for archival storage and retrieval. A system like that could also contribute significantly to film editing.

Mr. Morizono completed his remarks by talking about the high definition television (HDTV) system developed by Sony and demonstrated in Tokyo a few weeks earlier. The system includes two color cameras, a special VTR built on a type-C transport, and TV receivers and projectors, all working at 1125 lines with a 4:3 aspect ratio. Morizono felt that the picture quality was so impressive that it made his eyes very "happy" to watch it. He did not believe he could convey this feeling with mere words, but he hoped that HDTV would happen in this decade.

One film producer, Mr. Larsen of 20th Century Fox, emphasized the rising cost of film production. Films for television can now cost one million dollars per hour of finished production. Since the films eventually wind up on tape anyway (usually for convenience of operation), why not use HDTV to produce them in the first place? His company plans to be heavily engaged in making motion pictures for cable TV, and they could use an electronic cinematography system to do it. But, cost improvement would be a most important feature, he warned.

Henrikas Jushkevitchus of the USSR revealed in his presentation that Soviet Television is also switching from film to video for producing domestic TV programs. Not all producers in the Soviet Union are pleased with this trend, Jushkevitchus explained, as they are losing some of the freedom that film provides. As an example, producers can no longer use the excuse that they were waiting on the beaches for better weather before starting production. Jushkevitchus also reiterated Flaherty's remarks on the lack of an extra source of talent. Talented people are somewhat capricious, he said, and the best thing that advanced technology can do is provide ways to utilize current talent for greater production.

Hans Groll of Bosch/Fernseh asserted that film in television will be around for many years to come, and that the equipment has to be well maintained for optimum quality. Video may be better and faster, and video production may indeed be cheaper, but the electronic equipment



Round table in the Pavillion.



Montreux Gold Medal award by Dr. Paolo Zaccarian of CBS Europe to Richard Taylor of QUANTEL.

needs new features — better bandwidth and so on.

The Chairman asked Mr. Teer and Mr. McCrerrick to provide an oral summary of the proceedings, and Mr. Teer started with the following:

- (a) The monopoly positions of major broadcast networks will be affected by the new technology.
- (b) The video viewer will enjoy much greater autonomy in the choice of programs or services.
- (c) The videocassette recorder and the videodisk will exist side-by-side and expand together.
- (d) Flat panel display tubes for television will be available at the end of this decade.
- (e) High fidelity is perhaps a better term than high definition for the new television systems over 1000 lines.
- (f) Public reaction to television services is hard to define and methods of measurement must be found.
- (g) There is not enough attention being paid to compatibility between present and future TV standards.
- (h) Two-way traffic on cable and other interactive TV systems must be handled in the future.

Bryce McCrerrick then provided the summation from the user's viewpoint, reviewing these key points:

- (a) There is a lot of potential left in film. If electronics had come along first, we would now be admiring the capabilities of film instead.
- (b) Because the new television distribution is electronic, it does not automatically follow that program production has to be electronic.
- (c) There is much more work to be done on high definition TV. A future standard must be carefully chosen to provide a line structure that has future compatibility.
- (d) New television sets with better sound capabilities will sell the public on the advantages of improved audio on TV.

In summary, it was evident that panel

members had divergent opinions on some specific points, but there was virtually unanimous agreement that continued technology advances would yield high definition TV, teletext services, direct broadcast satellite reception, and other new services that viewers are waiting for, or will accept when they are available.

The Francis Ford Coppola Presentation

For many years it has been the object of the VTR industry to have serious feature films produced on videotape. But, film producers have resisted efforts to convince them of videotape's versatility and cost effectiveness by pointing out its shortcomings — high initial investment, bulky equipment and, most of all, low quality images as compared to 35-mm or 70-mm film. Last February, at the SMPTE Television Conference in San Francisco, it was revealed that there was just such a disciple of TV technology in the ranks of serious film directors — Francis Ford Coppola, whose cinematic credits have become household words.

Coppola already uses sophisticated television equipment to preshoot storyboards, track film camera placement and movement, and make his edit decision list before actually cutting a master film. A visit to Coppola's Zoetrope Studios in Hollywood shows that he has an Electronic Cinema Division, where technical director Thomas Brown has managed to assemble an array of video-oriented hardware. A fully-equipped video mobile van, complete with a Betamax editing console, is backed up by studio-based electronic cinematography gear spread throughout the complex.

In spite of the presence all this video equipment, the final product that emerges from Zoetrope Studios, and gets screened

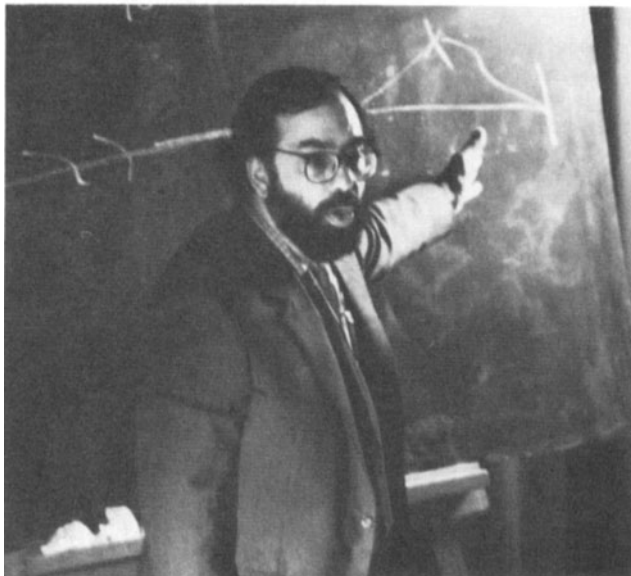
throughout the world, is film! The reason, emphatically given by Mr. Coppola himself, is that television today is simply incapable of the image quality needed for large-screen theater projection. Coppola came to the NHK Labs' high definition TV demonstrations at the SMPTE Conference in San Francisco, and he was obviously fascinated by the potential role of HDTV in filmmaking.

Coppola's main theme was the cost benefits of using video to plan, shoot, and post-produce a high budget feature film. With the aid of a special videotape prepared for the Montreux audience, he showed the way in which Zoetrope employs TV cameras, videotape, videodisk recorders, and videotape editing systems to produce his films.

The rough storyboard is created as a series of stills that are transferred to a floppy disk still-store and can be replayed in various sequences. A small, portable TV camera is used to "walk through" the desired scene that will be shot by the film camera on a pedestal or dolly. This gives the director a preview of the angles that the picture can be taken from. Instant tape replays of this electronic rehearsal help to correct mistakes or improve the aesthetics. Coppola's contention is that all this pre-planning using video saves significant amounts of the crew's and actors' time, thus greatly reducing the soaring cost of actual production. His estimate is that a better than 30 percent economy can be achieved this way. Of course, even though the end product is in a film can, the video aspect does not stop with the preplanning and shooting stage. Coppola uses videotape duplicates of the film footage to do all the post-production necessary before the film itself is cut to a final workprint.

This process is pure television editing, using a time code to identify edit decision points, and assembling a videotape master using all of the techniques that modern

(continued on p. 1102)



Francis Ford Coppola delivering his lecture.

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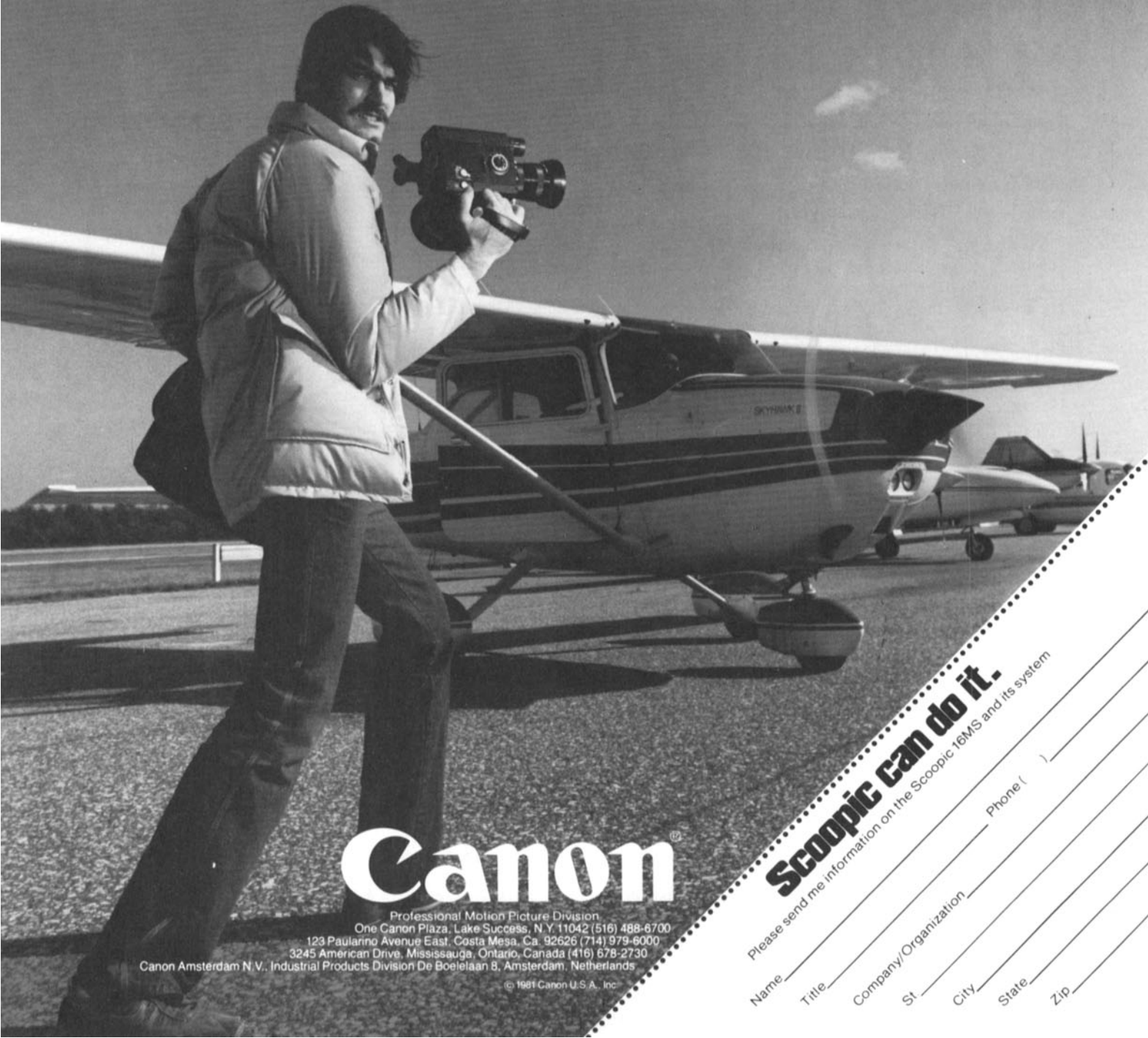
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videotape editing can provide. Coppola's technical staff has worked out the interface problems of using the VTR time code in a synchronous arrangement with the film frame sequence. They have also developed the special techniques necessary to handle the multiple channel sound editing that goes with the final film print. Again, Coppola reiterated his conviction that the cost effectiveness of doing his post-production editing on tape, rather than on the film itself, is a major factor in keeping Zoetrope's overall film budget within reasonable bounds. Coppola closed his presentation by describing his hardware "wish

list" to an audience which included the major equipment manufacturers. At the top of the list is a high definition TV image system capable of producing picture qualities commensurate with present day 35-mm film. That, in his view, is mandatory before video can replace film in feature production.

Secondly, he would like a random access, disk-type editing system that would permit virtual real time editing without the wait periods now inherent in VTR editing. In this latter case, Coppola admitted to the human foible of impatience, even when the current video system he uses is so much

better than the film system he was previously accustomed to using. With tongue in cheek, he described how he used to wait for a week in order to see a film edit which he can now preview in a few minutes on his VTR system. Now, seeing how easy it might be to make this technique almost instantaneous by using random access disks, he can hardly wait for that technology to be at his disposal.

In retrospect, the significance of Coppola's presence in Montreux may be that this is the first visible step toward a conversion from film to tape in major cinematic productions.

INDUSTRY NEWS AND EDUCATIONAL ACTIVITIES

Stanislav Vesely Dickinson — SMPTE Staff Engineer

Stanislav Vesely Dickinson, the newly appointed Motion Picture Staff Engineer, is a native of Czechoslovakia. He was graduated from the College of Film and Television in the Academy of Fine Arts, Prague, in 1979. That same year he came to the United States, where he was employed by the International Filmexchange, Inc., in New York City.



Dickinson has acted as producer for experimental multimedia audiovisual presentations. Among other projects, he worked on a closed-circuit presentation of the International Music Festival. While he resided in Prague, he was involved in an

extensive study of the international exchange of sports programs on television. He has also worked as manager of a number of film and television productions.

Dickinson was married in 1980. His wife, Suzanne, is Vice-President of Friendship Ambassadors Cultural Exchange Foundation. The couple resides in Upper Montclair, N.J.

Mary Crittendon — Production Editor

Mary Crittendon is the newly appointed Production Editor for the *SMPTE JOURNAL*. She comes to the SMPTE from the American Branch of Cambridge University Press in New York City, where she served as a production editor. In that capacity, she supervised overall production of scholarly works from manuscript to the bound book stage, coordinating work with authors and free-lance copy editors, preparing design and composition specifications, and in general handling the many and varied activities involved in book production.

Ms. Crittendon has a broad editorial background and long-standing interest in scholarly publishing. She has worked as a free-lance copy editor for the American Enterprise Institute in Washington, D.C.; Greenwood Press in Westport, Conn.; and the University of South Carolina Press in Columbia, S.C. She has also been employed by the South Carolina State De-



partment of Education, where she edited and produced departmental materials, book-length surveys, and statistical projects, and by the University of Oklahoma Press, where she began her publishing career as a full-time intern in 1970-71.

She graduated from Ohio University in 1970 with a Master of Arts degree in English Literature. While an undergraduate, Ms. Crittendon was elected to Phi Beta Kappa and was also a member of Alpha Lambda Delta and Phi Kappa Phi.

Irwin W. Young, Chairman of the Board of Du Art Film Laboratories, has been made a Fellow of the British Kinematograph Sound & Television Society (BKSTS). Only four persons, including Young, were
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