



Most sessions were very well attended. Here is the audience at the opening session.

The 130th SMPTE Technical Conference and Equipment Exhibit

October 15–19, 1988, New York City

The Society's 130th Technical Conference and Equipment, which ran from Saturday, October 15, to Wednesday, October 19, at the Jacob K. Javits Convention Center in New York, attracted an attendance of close to 16,000. Both the technical sessions and the equipment exhibit drew a large and attentive audience. According to industry sources, SMPTE has emerged as a primary showcase for the introduction of new video equipment. Manufacturers are now introducing products on a half-year basis, showing them at both NAB and SMPTE.

A record 165 papers were presented during the technical program, on the theme, "Innovations in Imaging and Sound." To accommodate the large number of papers, the topics were divided into 23 concurrent sessions. A complete listing of the papers appears in this issue.

One of the special features of this conference was the engineering demonstrations. The Committee on New

Television Technology, chaired by William Nicholls, CBS, held demonstrations on television field-rate conversion, from 60 fields/sec (HDTV) to 59.94 fields/sec (NTSC). A demonstration of monitor calibration and alignment procedures designed to attain consistency within the NTSC system was presented by the Working Group on Professional Studio Picture Monitor Systems, chaired by Joe Kane, Reference Recordings. The demonstrations were presented continuously during exhibit hours.

The equipment exhibit had been sold out for months prior to the conference. A large crowd was attracted to the display of products by more than 200 companies from all over the world. The exhibit occupied 73,000 sq. ft. of the Javits Center and was open from Saturday through Tuesday.

The conference got officially under way with an opening address by SMPTE President M. Carlos Kennedy, Ampex Corp. Immediately following Kennedy's address, Engineer-

ing Vice-President Stanley N. Baron, NBC, delivered an engineering report. A keynote address by William G. Connolly, Sony Corp., concluded the opening portion of the program.

The conference was under the overall supervision of SMPTE Conference Vice-President Blaine Baker, MPL Film & Video, Inc. Editorial Vice-President Howard T. La Zare, Deluxe Laboratories, Inc., directed the technical program.

The meeting was a very successful one, due in large part to the efforts of the various committees and their chairmen. Program Chairman Edward J. Burns, Eastman Kodak Co., and Program Vice-Chairman Frank J. Haney, Capital Cities/ABC, Inc., arranged an interesting and educational program of papers presentations. Major contributors to the success of the program were Topic Chairman (Film) John L. Baptista, Consolidated Film Industries, and Topic Chairman (TV) Alan S. Godber, NBC.

General Arrangements Chairman Charles E. Spicer, NBC, was in charge of the many non-program facets of the conference. He was assisted by the following chairmen:

Facilities: Roger Salles, Geocam Corp.; **A/V and Projection:** Timothy J. Spitzer, Du Art Video; **Banquet and Entertainment:** Linda Young, Du Art Film Labs, Inc.; **Display:** David Elliott, ABC-TV; **Spouses Program:** Patricia G. Spicer; **Hospitality:** David H. Bingham, WPIX; **Hotel Arrangements/Associate General Arrangements Chairman:** Ed Hobson, Grass Valley Group; **Luncheons:** James D. Hannafin, Technicolor; **Membership:** Michael Johnson, Eastman Kodak Co.; **Opening Film/Tape:** Robert Zagoren, Museum of Broadcasting; **PA and Recording:** Herb Ohlandt, National Video Center; **Registration:** Alan Rosenfeld, Teatown Video; **Transportation:** Neil Pilzer, Motion Picture Enterprises; **Assistant Auditor:** Charles H. Jablonski, NBC.

In addition to the technical program and the exhibit, a full program of social activities was available for those attending the conference. A press briefing was held on Friday evening in SMPTE President Carlos Kennedy's suite at the Marriott Marquis Hotel. Following the press briefing a welcoming reception, sponsored by the SMPTE, was held in the Broadway Ballroom of the Marriott Marquis.

Following a pre-luncheon reception hosted by Ikegami Electronics (U.S.A.), Inc., the annual Honors and Awards Luncheon was held on Saturday, October 15, at the Jacob K. Javits Convention Center. Guest speaker at the luncheon was Sir James Redmond, retired director of the BBC. Immediately following his

speech, the recipients of the 1988 awards were introduced.

On Sunday, the Fellows Luncheon was held to honor the new Fellows of the Society. A reception sponsored by Magna-Tech Electronic Co., Inc.,

preceded the luncheon, which was held in the Astor Ballroom of the Marriott Marquis. The guest speaker at the luncheon was former SMPTE President Leonard F. Coleman, Eastman Kodak Co.



Program Chairman Edward J. Burns and Arrangements Chairman Charles E. Spicer.



Program Vice-Chairman Frank J. Haney (left) and Program Topic Chairman (TV) Alan S. Godber.



Program Topic Chairman (film) John L. Baptista.



Assistant Auditor Charles H. Jablonski.



Membership Chairman Michael Johnson.



PA and Recording Chairman Herb Ohlant.



A/V and Projection Chairman Timothy J. Spitzer.

On Tuesday evening, a lively banquet and dance with a carioca theme was held in the Broadway Ballroom of the Marriott Marquis. Guests enjoyed a pre-dinner reception sponsored by Ampex Corp.; table wines courtesy of NBC; and entertainment sponsored by Agfa-Gevaert, Inc., Film Processing Corp., and Filmline Technologies.

Spouses accompanying conference delegates were invited to participate in a full program of events taking in some of the famous sights and sounds of New York City. In what has become a tradition at SMPTE conferences, a free blood-pressure testing clinic was conducted by the Will Rogers Institute. Throughout the entire conference, guests enjoyed a coffee club sponsored by Eastman Kodak Co. Further details will follow.



BKSTS President David L. Gibbs with SMPTE Executive Director Lynette Robinson.

Conference Committees — Program Chairmen

Editorial Vice-President

Howard T. La Zare, *Deluxe Laboratories, Inc.*

Program Chairman

Edward J. Burns, *Eastman Kodak Co.*

Program Vice-Chairman

Frank J. Haney, *Capital Cities/ABC, Inc.*

Topic Chairman

Film, John L. Baptista, *CFI*

Topic Chairman

Television, Alan S. Godber, *NBC*

Session Chairmen

Paul Bourque, *Agfa-Gevaert*; Jess Dally, *UCLA*
Robert H. Plummer, *RHP & Assoc.*; Joe Mahedy, *Modern Telecommunications, Inc.*

Julian Hopkinson, *LMC Peterson*; Rami Mina, *Eastman Kodak Co.*

Alan S. Godber, *NBC*; Dale Cripps, *HDTV Newsletter*

John Pytlak, *Eastman Kodak Co.*; John L. Baptista, *CFI*

Cory P. Carbonara, *Baylor University*; Indra Paul, *Bellcore*

Ron Uhlig, *Eastman Kodak Co.*; Ioan Allen, *Dolby Laboratories*

Keith R. Field, *CBC*; John W. Caluger, *Caluger & Associates*

James Keane, *NBC*; Isaac Hershey, *Chyron*

Arthur Florack, *Eastman Kodak Co.*; Rik Oibrechts, *Agfa-Gevaert*

Andrew Albanese, *Bellcore*; Bob Griffiths, *Telemet*

Mark S. Richer, *PBS*; Lionel Hightower, *PBS*

Bruce Penney, *Tektronix*; W. Robin Wilson, *NBC*

Robert Thomas, *Capital Cities/ABC, Inc.*; Kenneth Michel, *Capital Cities/ABC, Inc.*

James A. Mendrala, *Sonex International*; Ken Kishimoto, *Fuji*

Pol Descamps, *Barco*; J. H. Ballard, *NBC*

Joseph Kane, *Reference Recording*; Diana C. Asadorian, *CBS*

Randall N. Hoffner, *NBC*; Anthony Langley, *Rupert Neve*

Conference Committees — General Arrangements

Conference Vice-President

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Facilities Chairman

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Membership Chairman

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Opening Film/Tape Chairman

Robert Zagoren, *Museum of Broadcasting*

PA and Recording Chairman

Herb Ohlandt, *National Video Center*

Registration Chairman

Alan Rosenfeld, *Teatown Video*

Transportation Chairman

Neal Pilzer, *MPE*

Assistant Auditor

Charles H. Jablonski

Opening Ceremonies: Innovations in Imaging and Sound

The conference was officially opened on Saturday morning, October 15, in Hall 1A of the Javits Convention Center. Program Chairman Edward J. Burns, Eastman Kodak Co., delivered a few brief remarks to those assembled, and then introduced SMPTE President M. Carlos Kennedy, Ampex Corp. Kennedy's address recapped the highlights of the past year for the SMPTE, touching on the Society's domestic and international participation in industry affairs. He went on to say that this would be his

last conference as President, which he regarded as the highlight of his professional career, and took the opportunity to thank all of those who gave freely of their help and support.

Immediately following Kennedy's remarks, Engineering Vice-President Stanley N. Baron, NBC, Inc., delivered an engineering report. A keynote address by William G. Connolly, Sony Corp., entitled "Changing Times, Changing Technology," concluded the opening portion of the program.



SMPTE Engineering Vice-President Stanley N. Baron.

Opening Address

By M. Carlos Kennedy, SMPTE President

Good morning, honored guests, fellow members, ladies and gentlemen. As President of the Society of Motion Picture and Television Engineers, it is with the utmost pleasure that I welcome you to the 130th SMPTE Technical Conference and Equipment Exhibit.

The Society has once again provided a unique and valuable opportunity for you to learn, as stated in this year's conference theme, the many "Innovations in Imaging and Sound." I urge you to participate and take full advantage of all the conference has to offer. You as attendees contribute to the spirit of this forum and are, in fact, as much a part of it as the authors and exhibitors. Especially with the record number of papers to be presented, by authors from 9 countries and exhibits from 195 companies, I have no doubt that this will be one of our most engaging and successful conferences ever.

We share a common and important purpose here; I would like to briefly explain this. It is said by many that man's most precious senses are sight and hearing; they provide the means through which we learn about the world around us. It is for this reason that the recorded and reproduced im-



SMPTE President M. Carlos Kennedy.

ages and sounds have had such a great bearing on our world — this is not to lessen the possible impact of Smell-O-Vision. In all seriousness, it is an important service that we provide. It has been through image and sound tech-

nology that the world has further shrunk to what Arthur C. Clarke has termed "the global village." We, as members of a standards-developing organization, have contributed to this by not only fostering the advancement of the state of the art, but more importantly, its compatibility through standards. This task, as many of you know, is not always an easy achievement. In 1988, the SMPTE has striven, more than ever, to provide the means by which these advancements in image and sound can occur.

This past year has also been one of exciting activities for the Society. I consider it a true privilege to be your President during this significant and eventful time. It was just 60 years ago, on December 8, 1928, that the Society formed its first international section, located in London. I was only 25 days old, so I do not remember this very well. This section became the foundation for the British Kinematograph, Sound and Television Society, better known as the BKSTS, when it was formed, perhaps like a phoenix, in October 1930. A special welcome to its members.

We have continued our efforts to participate in international activities. In March, for example, I also repre-



Claude Leon of UNIATEC and R. Jausl of the Montreux Symposium.

sented the SMPTE at the founding ceremonies of the Brazilian Society of Television Engineering (SET) in Rio de Janeiro. A special certificate from the SMPTE commemorating the founding of this new organization was presented by me to their first president, Adilson Pontes Malta, when he visited the NAB convention in Las Vegas in April. Also in April, I represented the Society at the European Broadcasting Union (EBU) Annual Technical Committee meeting in Toulouse, France. Many of our standards are developed in close cooperation with the EBU, resulting in world common standards.

Our Executive Vice-President, Maurice L. French, represented the SMPTE at the Motion Picture and Television Engineering Society of Japan's 20th Motion Picture and Television Equipment Exhibit in Tokyo last May. Mr. French delivered an opening speech and participated in a panel discussion.

This year, the SMPTE has continued to have a presence at the major international meetings. In June, I had the pleasure of attending Sound and Vision '88, the SMPTE Australia Section's Third International Conference, held in Sydney, Australia. I have attended all three of these conferences, and I am pleased to report how successful this event has become and the privilege it was to speak before their international audience.

The Society also had booths and representation at the NAB in Las Vegas, the IBC in Brighton, England, in September, and at Photokina in Cologne, Germany, just last week, and I have had the honor of attending all of

these. At IBC, the SMPTE held its first international reception.

In 1988, a Motion Picture Presidential Advisory Committee was formed. This group is similar to the Television Presidential Advisory Committee and is made up of executives in the technical side of the motion-picture industry. They meet to advise the Society on matters of concern to our members and to the industry. Of course, the traditional Television Presidential Advisory Committee also met during the NAB convention.

Satellite transmission of section meetings continues to be used, with both the New England and Toronto sections originating a meeting by this means. I predict that satellites will be the method used to reach more of our membership in the future.

Education is one of our important tasks. We do this by conferences, special meetings, through our *Journal*, and at local section meetings. The Chicago Section, the Ohio Section and the Montreal Section hosted one-day miniconferences. The Hollywood Section is continuing its active program of educational special meetings. The SMPTE sponsored engineering courses at the University of Southern California, and one-day seminars were held at the University of California at Los Angeles and Pasadena City College.

In the spring, our Engineering Vice-President participated in a Workshop on Techniques for HDTV in L'Aquila, Italy. I have the honor of delivering this year's Royal Television Society Schoenberg Memorial Lecture next month in London, where I will discuss "The Global Standards Dilemma — Agreement or Anarchy." Your Society has had an active year indeed.

Over the course of the next five days, there will be a record 167 technical papers presented. In addition, all 72,950 sq. ft. of the exhibit hall has been sold out since early this summer. I am sure you are pleased to know that this year the technical sessions are being held in the hall adjacent to the exhibit hall, rather than three blocks away, as at the last conference held here in the Jacob Javits Convention Center.

Before we open the exhibit hall with the ribbon-cutting ceremony this afternoon, the Society will honor 22 distinguished contributors to the motion-picture and television industries



Sections Vice-President Irwin Young and John C. Norris.

at the Honors and Awards Luncheon. We are pleased to have, as featured speaker at the luncheon, Sir James Redmond, a former director of engineering of the British Broadcasting Corp. At the Fellows Luncheon on Sunday, we will honor 14 members who are being awarded the distinguished grade of Fellow in the Society. Len Coleman, a former President of the SMPTE, will be the guest speaker at that luncheon.

Shortly, Engineering Vice-President Stan Baron will present his 1988 Engineering Report; he will be followed by former SMPTE Governor William G. Connolly, who will deliver a special keynote address entitled "Changing Technology, Changing Times." I look forward to Bill's message with eager anticipation.

Before I relinquish my position here at the podium, I want to thank all

those who have put so much time and effort into not only making this conference possible, but making it such a valuable and auspicious occasion. Although these individuals are far too numerous to mention here, I do want to thank all those on the technical program and arrangement committees, and the many corporate sponsors. I also want to extend a special thanks to Conference Vice-President Blaine Baker, General Arrangements Chairman Charles Spicer, Editorial Vice-President Howard La Zare, Program Chairman Ed Burns, and Spouses Chairperson Patsy Spicer. The Spicers deserve a special thanks, since they have just returned from the Seoul Olympics last week, where they have been for the past several months.

On a more personal note, this will be my last conference as your President. It has been the highlight of my

professional career, and I want to thank all of those who have made these past two years so rewarding. I want to give a special thanks to my wife, Fran, for all her help and support. She is now a full member of the Society of Professional Spouses Program Attendees (SPSPA). As you see me around the conference, when I am smiling, you will know I am thinking about turning the post over to your next President; but on the other hand, if I look sad, you will know I am thinking about turning the post over to your new President. I thank you for the honor and privilege of being your President these past two years.

I again urge you to take full advantage of what is offered here — I am sure you will find this year's conference to be one of our best ever. Thank you for participating, and have a most enjoyable and rewarding conference.

Changing Times, Changing Technology

By William G. Connolly

Good morning. It's a great honor for me to present the keynote address to an organization of which I've been part for so long.

Eight years ago, I had the opportunity to present my thoughts and hopes for the future of SMPTE. The fact that I'm back today tells me one of two things about the membership of this Society. Option one is that you're all generous people and decided to give me a second chance; and option two is that eight years was long enough to forget. Whatever the reason, I'm delighted to be here.

When I expressed my views in 1980, I was still vice-president of technology for CBS, and I was a strong believer in the work of this organization, which equates to being a strong believer in technical standards.

The incredible pace of development in sound and image technology has made the last eight years a period of changing times and changing technology. For decades, people referred to



Opening Session guest speaker William G. Connolly presenting keynote address.

the need to keep up with the times. In part, that meant keeping in pace with changing times, changing lifestyles, changes in business practices, and changes in governmental philosophy.

All of these things have been changing, are changing now, and will go on changing. But none of these things has changed as quickly as technology has in the 1980s. Today, the relevant question is whether the times have kept up with the technology.

I will only speak to one narrow area of that question. But it's an area that is the life and breath of this organization — the area of standardization. Have advances in this vital area matched the pace of technological development? Clearly they haven't.

If our industry had pursued sound and image technology with the same zeal that we've pursued standards, the world would still be watching black-and-white TV. We have allowed an ever-widening gap to develop between our standards and our technology.

Admittedly, throughout the history of technological development, there has always been a gap between what was technically possible and what was economically and politically feasible at any given time. That's a normal part of the growth cycle. But when it comes to the technology of images and sound, the gap between technical

Text of keynote address given by William Connolly, president, Sony Communications Products, Teaneck, N.J.



Conference Vice-President Blaine Baker and Executive Vice-President Maurice L. French.

achievement and the standardization process goes beyond normal cycles.

Technology is galloping — standardization is crawling. This is something our industry and the people served by our industry cannot afford.

The speed of technological innovation is drastically shortening design cycles. A new technology, a new product, has less and less time to bask in the sunshine of being state of the art. We're approaching a point where we face the real possibility of seeing a product go from R&D into the marketplace and into obsolescence while we are still talking about adopting a standard. Intelligent, realistic, equitable standards are the guidance system that stands between our industry and chaos.

As members of SMPTE, we all share in the responsibility to expand and maintain that system. Yet everyone in this hall knows that the guidance system is failing. The stress signs are appearing, just at a time when the explosion in technology makes orderly standards more important than ever.

This morning I'd like to examine what's happening in that technology. We are in the most exciting period of technological development that I've ever seen, and I've been in this business for 28 years. Then I'd like to share some thoughts about what we, the members of SMPTE, can do to nurture that development.

In terms of technology, the industry over the last decade has gone through a phase that is nothing short of revolutionary. Just think for a min-

ute about how far-reaching our technical revolutions have been.

Perhaps that most fundamental of these has been the conversion from analog to digital. Digital technology is becoming the norm, and we are inevitably moving toward the day when digital technology will dominate transmission and display as well.

Right now we're making use of both composite and component digital recording. The switch from discrete circuitry to VLSIs has given us almost an open ticket in terms of what's possible in the future. These

technologies have hit their stride during the 1980s. As with most innovations in sound and image, they were developed for the professional broadcasters. But the potential of these technologies has been so broad, their changes so fundamental, that they have become itinerant. They have traveled widely from one group of users to another.

Innovations in professional broadcasting normally trickle down to business/industrial videographers and consumers. But the appeal of the new technology of this decade has been shared much faster than any other generation of technology.

A top-of-the-line consumer camcorder today has features that professional equipment didn't have back in 1979. VLSI has put massive computer power into postage-stamp dimensions, and that incredibly complex power has simplified the process of video recording. For at least the next ten years, VLSI circuitry will continue to expand in capacity and come down in price. This is the phenomenon driving our R&D efforts. It should be driving our standardization efforts as well.

The accelerated pace of development today is a reflection of customer needs. The megacustomers in the broadcasting community have upped the ante as to what they want technology to deliver for them. Their business is more competitive than ever. They



Nelson Meacham, Craig Curtis, Richard Stumpf, and Tomlinson Holman.

want the kind of products that are going to help them produce better programming, at competitive costs. This is what the changing technology has been delivering for them — but being only human, they want more.

What do they want? They want equipment that is still smaller, still lighter, even more power-efficient with more signal processing capabilities, reliable, and, not incidentally, even more economical. VLSI circuitry is indisputably the means for meeting those expectations. It's been the heart of the revolution in broadcast equipment, and that revolution will only get more intense.

Now, the changing technology has reached that point, and the next generation of VLSI technology will probably double that capacity. But the changing times are lagging — at least in terms of setting realistic standards for VLSI designs.

Personally, I think that most standards committees lack a real understanding of the relationship between VLSI manufacturing and VLSI design. They must be educated to the fact that it takes a minimum of 18 months between the design of a new VLSI circuit and the time it's ready for the marketplace — and once that circuit is designed, once it starts that 18-month trip into production, the manufacturer is locked into that chip design. You can't change the internal circuitry of the chip without starting the whole 18-month process over again.

This makes it critically important to have a standard at the beginning of the design process. If there is no standard, the manufacturer will have to go it alone, because there is no turning back once you start that year-and-a-half run toward the finish line.

Obviously it's better for the manufacturer, better for its broadcast customers, and better for the industry if a universal standard is in place when the VLSI designer goes to work. But VLSI isn't the only red-hot technical area in need of some realistic standards.

In the whole range of sound and image technology, high-definition video stands tall as one of the major accomplishments of this decade. It will not only redefine picture quality on home television sets, but it also has the potential to bring the motion-picture and television industries even closer together.

With HDTV, we are beginning to



Editorial Vice-President Howard T. La Zare and Engineering Vice-President Stanley N. Baron.

see the distribution of feature films to theaters across a country by simply bouncing them off a satellite. Video image technology has found its Holy Grail. We finally have a video image that can match the picture quality of 35mm film. Now, what are we going to do with it?

Here's one example from an upcoming CBS movie of the week, "Littlest Victims." And remember Super Slo Mo? It made its debut on ABC in the Los Angeles Games of 1984. (Tape is rolled, alternating Olympic action scenes, at regular speed, then Super Slo Mo.)

It strikes me that there's a parallel between Super Slo Mo and our progress toward industry-wide standards. In both cases, you see world-class competitors moving toward common goals, but at an excruciatingly slow pace.

Needless to say, I think it's time we put the standards process into normal speed, because the lack of progress in standards is slowing down every competitor in the broadcasting game.

High-definition video is a prime example. It's a technology that's very much here and now. But its impact on the industry is being minimized by the lack of consistent standards.

With the invention and application

of videotape recording the production and broadcast operations have grown independently. The post-production industry is becoming an increasingly important part of the television business. They have a viable organization in the ITS, and I'd like to work with them on a common high-definition standard.

This is long overdue, but I'm not about to give up hope. Lately I've had some encouragement from a very unlikely source, the Soviet Union. In September, I was in Moscow with ten broadcast engineering representatives from Europe and Japan. We were there at the invitation of the vice-chairman of Soviet radio and television to discuss what could be done to achieve a worldwide HDTV standard.

I've been to Moscow for standards talks before, but never like this. It may be *perestroika*, but the Russians are serious. And they're willing to cooperate. If they can do it, I'm sure the world broadcast unions, SMPTE, and the ITS can also.

Let me cite a complex situation in digital recording. We have a production community operating with a component digital format, and a transmission community operating with a composite digital format. There's a growing sentiment that one



(L-R) International Governor Bengt Orhall, Conference Vice-President Blaine Baker, and International Governor Pol Descamps.

format is good and one is bad. Let's be honest. These positions are moving further apart, not coming together.

These inconsistencies in format reflect an inflexibility by all the players. The applications of the technology we're all so proud of are being held hostage to narrow, vested interests. Corporations blessed with creative insights in R&D develop tunnel vision when it comes to seeing the need to create universal standards.

Unfortunately, standards in the television industry today are a subjective value. What the networks might consider a workable standard is too often at odds with what the production companies might want, and both their concepts probably overlook the question of manufacturing ease.

We do have a serious problem. The clock is running, the technology is changing. So is the competitive climate, as is the legislative climate. The broadcast industry doesn't have the time or money to waste in endless deliberations over standards. Let's be frank, too often those deliberations include people with no real commitment to universal standards.

But don't think for a minute that I consider the SMPTE review process irrelevant. Just the opposite. In fact, it is crucial. I've never seen a better substitute for the SMPTE standards review process.

That process starts with a study group, then moves on to a working group. After that come changes of information, and then a recommended standard. That standard is pub-

lished in the *SMPTE Journal* and comments are invited. Then it's submitted to ANSI.

It's an involved process. But when it's carried out correctly, it represents the serious and thorough consideration that a new technical standard demands. I might want to see this process accelerated, but never short-circuited. To do that would be to leave a void that the vested interests would surely fill.

The voice of vested interests will always be louder than the public interest unless someone takes a strong role as the advocate for the total industry. This is the role the SMPTE must take.

We need a strong, assertive, and impartial Society — one that can look first at the need for that guidance system of standards, and second, at the vested interests represented among the membership. And *all* of us represent vested interests, myself included. We will continue to have our competitive scraps. But when it comes to technical standards, we all desperately need the common parameters that meaningful standards provide.

With that goal in mind, I would like to make some specific suggestions, suggestions designed not to offend but to help elevate SMPTE into the job that the times demand.

Number one: The Society must embrace the role of being a strong leader in standardization, not just a forum for various interests.

Number two: Membership of the standard-setting committees must be

broadened to include more people in touch with the realities of production.

Number three: SMPTE must develop its own mission statement and educate the industry as to that mission.

Number four: The Society must coordinate the different working committees and minimize overlap and confusion.

Number five: If SMPTE is to be the activist organization of leadership that the industry needs, then the executive leadership of the Society must take a more active role in the work of its committees.

Number six: We have to examine who the committee leaders are. Are we recruiting people with the appropriate backgrounds to head our working committees? If not, then we're not being fair to the membership or the committee heads.

And finally, I would like to see SMPTE become a proactive information processing force. That means educating the industry on standard issues and constantly canvassing the marketplace for real-life options and experience with standards.

If we can do these things, I would hope that we could also come to look at standards as the beginning of the creative process, not the end. I firmly believe that. If we simply let this abundant flow of new technology seek its own level, then we become like the guy who spent ten years building a jet plane in his basement. Quite an accomplishment, but how will he ever get it into the air? Our technical basements are full of exciting new applications and brand new technology. The earlier we bring out logical standards, the faster and higher those new applications will fly.

We are in a unique position. The state of sound and image technology has progressed to the point where there are virtually no limitations on what technology can do.

The big question is, are we ready to put this technology to work? Are we ready to exploit its full potential, to get it out there in the marketplace where it will create sales and excitement? If we are ready to do this, then we must also be ready to set realistic standards, and not wait until the technology has passed us by.

I think we are ready to do all of those things. And I firmly believe that SMPTE is the organization that can make it happen.

Thank you very much.

SMPTE Board of Governors Meeting

The SMPTE Board of Governors met Thursday, October 13, 1988, at the Marriott Marquis Hotel in New York. As the governing body of the

Society, the Board decides policy that determines all Society activities within the framework of the SMPTE Constitution and Bylaws. The Board

holds three meetings each year, one of which coincides with the annual Technical Conference and Equipment Exhibit.



Officers of the Society at the Board of Governors meeting: (from left) Past-President Harold J. Eady; Secretary/Treasurer Richard K. Schafer; Executive Vice-President Maurice L. French; President M. Carlos Kennedy; Financial Vice-President Stephen D. Kerman; Conference Vice-President Blaine Baker; Editorial Vice-President Howard T. La Zare; and Sections Vice-President Irwin W. Young.



A view of the Board of Governors meeting.

Press Briefing

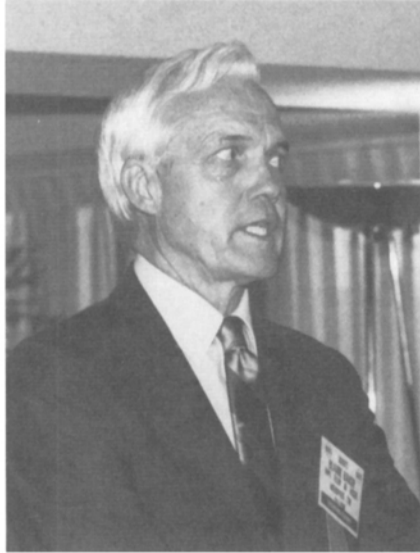
A preconference press briefing was held Friday, October 14, in the President's Suite at the Marriott Marquis Hotel. SMPTE President M. Carlos Kennedy, Ampex Corp.; Conference Vice-President Blaine Baker, MPL

Film & Video, Inc.; and Engineering Vice-President Stanley N. Baron, NBC, Inc., were available to answer questions. The information they provided was supplemented by a press kit. Chairman of the Public Relations

Advisory Committee Charles J. Lipow, Charles J. Lipow, Inc., opened the briefing and introduced the officers. Many reporters from the motion-picture and television engineering press were present.



SMPTE President M. Carlos Kennedy speaking before the press.



Conference Vice-President Blaine Baker answering a question from the press.



Public Relations Advisory Committee Chairman Charles J. Lipow.



Overall view of the press briefing.



The Honors and Awards Luncheon.

Honors and Awards Luncheon

The Society's 1988 Honors and Awards Luncheon was held on Saturday, October 15, 1988, in Hall 1D of the Javits Convention Center. During the luncheon, the Society's prestigious awards for outstanding technical achievement, authorship, and service to the SMPTE and the industry were presented to the various recipients. A reception, sponsored by Ikegami Electronics (U.S.A.) Inc., preceded the luncheon.

Guest speaker at the luncheon was Sir James Redmond, retired director of the BBC, who delivered an address entitled "Fifty Years of Changing Standards." The complete text of his speech appears in this issue.

At the start of the luncheon, SMPTE Secretary/Treasurer Richard K. Schafer introduced President M. Carlos Kennedy, who welcomed guests with a brief address. He then introduced those seated at the dais (excluding the award winners) and



SMPTE President M. Carlos Kennedy handing over the gavel of office to SMPTE President-elect Maurice L. French.

the guest speaker. Following the guest speaker's address, the Society's awards were presented to the various recipients by Executive Vice-President Maurice L. French. Descriptions of the awards and biographical information about the recipients follows. At the conclusion of the awards presentations, French introduced the new Fellows of the Society.

Next, the elections of key Society officers was announced by Schafer. Elected for the 1989-90 term were the following: President, Maurice L. French, Canadian Broadcasting Corp.; Executive Vice-President, Blaine Baker, MPL Film & Video, Inc.; Editorial Vice-President, Frank J. Haney, Capital Cities/ABC, Inc.; Financial Vice-President, Richard K. Schafer, Eastman Kodak Co.; Conference Vice-President (1989), Stephen D. Kerman, Tektronix, Inc.; Secretary/Treasurer, L. John Spring,

Eastman Kodak Co. The incumbent Engineering Vice-President Stanley N. Baron, NBC, and Sections Vice-President Irwin W. Young, Du Art Film Laboratories, Inc., will serve the remaining year of their terms of office.

After some concluding remarks, SMPTE President Kennedy introduced President-elect Maurice L. French. He then turned over the gavel to French, officially marking the transfer of responsibility as President of the Society.

Gold Medal Sponsors

The Agfa-Gevaert Gold Medal Award: Agfa-Gevaert N.V.
The Eastman Kodak Gold Medal Award: Eastman Kodak Co.
The John Grierson International Gold Medal Award: National Film Board of Canada
The Herbert T. Kalmus Gold Medal Award: Technicolor, Inc.
The Alexander M. Poniatoff Gold Medal for Technical Excellence: Ampex Corp.
The David Sarnoff Gold Medal Award: General Electric Co.
The Samuel L. Warner Memorial Award: The Estate of Samuel L. Warner
The Progress Medal Award: The Society of Motion Picture and Television Engineers, Inc.

The Honors and Awards Committees for 1988

HONORARY MEMBERSHIP

Harold J. Eady, *Chairman*
 Charles E. Anderson
 Leonard F. Coleman
 Kenneth M. Mason
 Robert M. Smith

PROGRESS MEDAL AWARD

Maurice L. French, *Chairman*
 Stanley N. Baron
 Frederick M. Remley
 Richard J. Stumpf
 Richard K. Schafer

AGFA-GEVAERT GOLD MEDAL AWARD

Robert J. Ringer, *Chairman*
 Ronald Balousek
 Peter Keane
 Wilson Markle
 Larry Thorpe

EASTMAN KODAK GOLD MEDAL AWARD

Glen Pensinger, *Chairman*
 Grant Dearnaley
 Robert Musburger
 Norman A. Thelen
 Ray Wyman

JOHN GRIERSON INTERNATIONAL GOLD MEDAL AWARD

Grant Dearnaley, *Chairman*
 John C. Gates
 Fred Lemmin
 Richard K. Schafer
 Louis F. Wolf, Jr.

HERBERT T. KALMUS GOLD MEDAL AWARD

Murray Forrest, *Chairman*
 John L. Baptista
 Anthony D. Bruno
 William A. Koch
 Robert M. Smith

PRESIDENTIAL PROCLAMATION

M. Carlos Kennedy, *Chairman*
 Blaine Baker
 Stanley N. Baron
 Harold J. Eady
 Maurice L. French
 Stephen D. Kerman
 Howard T. La Zare
 Richard K. Schafer
 Irwin W. Young

ALEXANDER M. PONIATOFF GOLD MEDAL AWARD

Bernard L. Dickens, *Chairman*
 David K. Fibush
 Jukka Hamalaenin
 Grant M. Smith
 John Streets

DAVID SARNOFF GOLD MEDAL AWARD

J. Wayne Caluger, *Chairman*
 Charles E. Anderson
 Jay Ballard
 David K. Fibush
 L. Merle Thomas

SAMUEL L. WARNER MEMORIAL AWARD

Richard J. Stumpf, *Chairman*
 Ioan Allen
 Terry Beard
 Tomlinson Holman
 Ronald E. Uhlig

JOURNAL AWARD COMMITTEE

Roderick T. Ryan, *Chairman*
 Edward P. Ancona, Jr.
 John L. Baptista
 Michael T. Fisher
 Franklin R. Reinking

CITATION FOR OUTSTANDING SERVICE TO THE SOCIETY

Irwin W. Young, *Chairman*
 Blaine Baker
 Stanley N. Baron
 Joseph A. Flaherty
 Howard T. La Zare

Fifty Years of Changing Standards

By Sir James Redmond

Good afternoon, I am honored to be invited. I have admired the work of the Society over many years and am proud to be a Fellow.

I started in what we then called High-Definition Television broadcasting 50 years ago, in September 1938, at Alexandra Palace in London. This, the world's first regular television service, had started two years earlier after many years of experiment and conflict (mainly between John Logie Baird and the BBC), before the 405-line, 50-field standard was developed and brought into service by the Schoenberg/Blumlein team of EMI.

I had, therefore, missed the debate leading up to the choice of that standard. I needn't have felt deprived! I seem to have spent much of the subsequent 50 years talking about broadcasting standards: both technical and program standards. We are still talking about them. In fact, we seem to be talking about little else. The current debate on the choice of a high-definition television standard has been going on since the early 1970s and will continue for years to come. We are unlikely to see high-definition television on large screens in the home before the turn of the century.

There seem to be a frightening number of people involved — broadcasters, equipment manufacturers, learned societies, standards committees by the score and, not least, a dozen governments anxious to protect their industries. Agreement seems remote.

In the last few years, the set makers have begun to make their voices heard. In previous standards debates theirs are the voices that have carried the most influence with the decision-makers. The manufacturers of television sets have much at stake. They need an orderly progression of sales. They don't want existing television sets to be rendered obsolete overnight. They don't want to go bankrupt wait-



Sir James Redmond addressing guests at the Honors and Awards Luncheon.

ing for markets for new sets to develop. They have a lot to fight for. The rewards could be enormous.

Nomura, one of Japan's leading stockbrokers, has reported that high-definition television has sales potential greater than any other consumer electronics product. Nomura suggests that the receiver market alone would be worth more than 30 billion dollars within 12 years. The set makers could be very influential in the current standards debate. They certainly were so in the past.

Working in television at Alexandra Palace in the year before September 1939 was a delight. The challenges were great. For a young Scot new to television, new to London and the London theater, it was great fun. The technology of television was strange (most of us were from radio), but the Blumlein system was brilliantly conceived. Modern-day television uses its basic parameters virtually unchanged.

We knew that war was coming and that television would cease. We cursed our elders, who were intent on interrupting our noble endeavors and

our simple pleasures, and we were convinced that we were at the beginning of something worthwhile. The Blumlein 405-line standard was good, and we were getting better pictures out of it all the time. We'd come back to it after the war and make them even better. And thank God, many of us did.

In 1946, the post-war British government had no difficulty in deciding to restart the television service on the prewar 405-line standard. They were concerned with avoiding a repetition of the large-scale unemployment that followed the First World War, and so wanted to encourage new industries. The set makers, too, were keen to start and to find new markets to replace their dwindling military contracts. They argued that the minimum worthwhile change would be to a doubling of the 405-line standard; that was not practical with the technology and the frequency spectrum available. The chief engineers of the BBC and the Post Office thought that the next effective change would be 1000 lines.

The BBC, privately, wanted a quick start before others could persuade the government to give the television franchise to private enterprise. The service was restarted on June 7, 1946.

Television was not regarded as a very significant part of the BBC in those days, by comparison with radio, which had come out of the war with an enormous reputation for the quality of its reporting, nationally and internationally.

Thus, when there was a fuel crisis in 1947 and everyone was encouraged to switch off to save fuel, the BBC switched off television! Watching television then was rather like watching high-definition television demonstrations now. You had to sit in the dark if you wanted to see much! Some argued that sitting in one room in the dark watching television actually saved fuel. It took the receiver industry a month to get the service restored and, even then, only outside peak hours. When King George VI died in 1952 (and there were by then 1.5 mil-

Text of address given at the Honors and Awards Luncheon by Sir James Redmond, retired director, BBC, London, England.

lion sets in use — about 1 in every 10 households), the BBC shut down television for 48 hours as a mark of respect, leaving everyone without pictorial memories of either the well-loved old king or the new, young Queen Elizabeth II.

The big standards issue of the 1950s in Europe was the effort to agree on a unified monochrome standard to permit mass production of television sets which could be used in any European country, and to facilitate program interchanges. The pressure came initially from the set makers, notably the giants RCA and Philips. They promoted 625/50, as its line frequency is close to that of the 525/60 American standard, on the (logical) grounds that it would unify receiver design and make for a partial transatlantic standard.

Many countries not yet into television were soon won over to 625. Naturally Britain (on 405) and France (by then on 819) resisted, as 625 lines was not compatible with either 405 or 819. However, by 1952, 625 lines was adopted by all European countries, including the pioneers, Britain and France, who agreed to use the 625-line standard on UHF when we started color television.

In retrospect, it was a remarkable achievement to persuade all of Europe, West and East, to agree on a common standard. Much of it was due to the determined policy and drive of RCA and Philips. It greatly accelerated the spread of television throughout Europe. Among other things, it made it possible, in subsequent years, to fit in three programs on UHF in all the many countries of mainland Europe, and four programs in the U.K.

The next standards issue was less happily resolved — the color standard. The great success of the American National Television Systems Committee (ANTSC) and the eventual approval of the NTSC-compatible system was much admired in the U.K. and most of Europe. It was a great achievement by the combined efforts of the U.S. receiver and broadcast industries, notably again by RCA. When the time came to try to agree a color standard in Europe it seemed sensible to adapt NTSC for 625-line use.

I think there might have been very little support for anything other than NTSC in Europe were it not for the fact that many influential Europeans at that time were spending too much

time in American hotel bedrooms struggling with the hue control on the color sets provided. And, perhaps more disturbing, the U.S. broadcasters were strangely reluctant to get on with broadcasting programs in color. The sale of color sets in the U.S. languished. Both factors encouraged the discussion of alternatives in Europe.

During a critical period, when it looked as if the Russians might support SECAM (which, of course, they eventually did), I went as the recording member of a four-man BBC team to try to persuade the Russians to adopt NTSC, which we in the BBC favored because of its superior compatibility.

We got a lot of understanding, but no commitment, from the Russian broadcasting engineers. Eventually we saw Mr. Gvishiani, son-in-law of Kossygin and Minister for Science and Technology. Things didn't look too promising as we entered his large and prestigious office. Its main feature was a French Thomson Houston color receiver with the largest screen I had seen on any set, color or monochrome. Sure enough we got nowhere. He was very complimentary, but after he heard us he said, "I am sure the BBC could make any system work, but we need the simplest for our simple distribution systems and we have decided on SECAM." We learned later that they have been persuaded to adopt SECAM because of a promise of a receiver design which would avoid the patents on the RCA shadowmask tube. They never got it.

The British receiver industry, tiring of the BBC's forlorn support for NTSC, pressed the government to opt for PAL, and eventually that was chosen; the BBC acknowledging the importance of the receiver industry's opinion and by then ready to go along with PAL as the most likely system to be agreed upon as the single standard for Europe. The French were, however, adamant in their insistence on the *Supreme Effort Contre l'Amerique* in spite of its disadvantages. So we finished up with two color systems in Europe, PAL and SECAM, and set makers and broadcasters have had to cope with their complexities and the problems of program interchanges ever since.

PAL has turned out to be an excellent color system, very tolerant of the differential phase and gain errors which troubled several European long lines operators at the time. Compati-

bility was not a serious problem after all. The great virtue of PAL, however, is that it met the criticism of all those Europeans struggling in American hotel bedrooms. It removed the hue control knob from the color receiver.

The general view of most of the engineers in the receiver industry and in broadcasting, who worked on the problem, is that failure to agree on a common standard was due to political interference. Left alone, they would have agreed on a single European standard, probably PAL.

In Britain, we coupled the move to 625 and UHF with the move to color. We started a new program, BBC2, on 625 lines UHF in 1964 and began to convert it to color in 1967. In 1969 we began to duplicate our two long-established 405-line monochrome programs, BBC1 and IBA, on UHF in 625 lines and color. It was 16 years later (1985) before most viewers had replaced their old 405-line sets and we could switch off the 405-line transmissions.

In the early years of the introduction of BBC2 and the changeover to BBC1 and IBA, viewers had to put up with the added complexity and cost of dual standard sets. Knowing that color was coming, many viewers postponed replacing their elderly mono sets; and after color sets were available, they deferred buying them until they felt confident about their performance and reliability. The receiver industry had about seven lean years before and after the start of color until the sale of sets was reestablished at its earlier monochrome levels.

We broadcasters had the extra costs of duplicate transmitters and of standards conversion. We protected our audiences by making all programs in 625-line color as soon as we could and converting down to 405-line mono for simultaneous transmission. That involved us in a costly crash program of studio conversions and staff training, and during all the changeover period, useful frequencies which could have carried two or three more programs were rendered useless by duplication.

It was a difficult period for broadcasting in Britain. It was the right thing for us to do, for the sake of uniformity and for efficient use of the frequency spectrum throughout Europe. We were just paying the price of being a pioneer. However, I wouldn't recommend it where there is an alternative.

The Honors and Awards Presentations of 1988

The Society presents a number of awards in recognition of outstanding improvements and confers certain grades of achievement annually. These awards have been created over a period of years.

Certain practices and rules are common to all the awards. Award committees consist of five Honorary, Fellow, or Active Members of the Society appointed annually by the President and confirmed by the Board of Governors. The Journal Award Committee is appointed by the Editorial Vice-President. Membership in the Society is not a prerequisite for an award.

Any member of the Society is entitled to make a nomination for an award. Such nominations should be made in writing to the chairman of the appropriate committee, giving the reason why the writer believes the award is justified. The committees forward their reports to the Secretary of the Society in time for presentation to the Board of Governors at their midyear meeting. Normally, awards are presented at the National Conference of the Society following approval of the award by the Board of Governors.

The highest award and greatest distinction that can be conferred by the Society is Honorary Membership, which includes eventual inscription on the Honor Roll of the Society. The Progress Medal is the premier medal award of the Society. The Agfa-Gevaert Gold Medal, the Eastman Kodak Gold Medal, the John Grierson International Gold Medal, the Journal Award, the Herbert T. Kalmus Gold Medal, the Presidential Proclamation, the Outstanding Service to the Society Award, the Alexander M. Poniatoff Gold Medal Award, the David Sarnoff Gold Medal Award, and the Samuel L. Warner Memorial Award recognize achievement in the special fields of accomplishment described under each award on the following pages.

The Citation for Outstanding Service to the Society

The purpose of this citation is to recognize individuals for dedicated service to the Society over a sustained period of time.

SMPTE Journal, January 1989

The 1988 Citation for Outstanding Service to the Society is presented to the following:

Gordon W. Ballantyne, Applied Electronics Ltd., in recognition of his conscientious service and dedication to the Toronto Section for over 20 years as a member, a manager, and an officer, and for his dedication in assuring the success of every regional mini-conference held in Toronto by serving as a member of the Conference Committee and as Program Chairman in 1971 and 1986.

Charles H. Jablonski, NBC, in recognition of his many activities with the Society on the national level. Jablonski is an ever-present voice in New York Section activities. He served as Chairman of the New York Section, and previously as Secretary/Treasurer. He was active in organizing the 128th National Conference in New York as well as the 130th Conference.

Richard I. King, Borough of Manhattan Community College, in recognition of his active membership in the New York Section since 1958. King has served in several capacities, including Manager. He frequently chairs and works on local arrangements and audiovisual committees for SMPTE national conferences in New York, and he has provided the audiovisual support for many section meetings.

C. Robert Paulson, Artel Communications Corp., in recognition of his

unfailing technical advice, support, and guidance for the New England Section. He served as Section Chairman from 1980 through 1982 and continues to be an active speaker/presenter at New England Section meetings. Paulson arranged a six-state New England telemeeting via terrestrial microwave to several PBS outlets, in addition to a 2¼-hour national teleconference of a New England Section meeting transmitted via satellite to all of North America.

Gordon W. Ballantyne is manager of engineering, Applied Electronics Ltd., Toronto, Ont., Canada. He has been an active SMPTE member since 1965, serving the Toronto Section as Manager, Secretary/Treasurer, and Chairman. Ballantyne has served the Society in many capacities, including that of Topic Chairman for the 14th Annual SMPTE Television Conference in 1980, Journal Awards Chairman in 1981, member of the Board of Editors 1974-1980, Program Chairman of the 1986 Montreal/Quebec, Rochester, Ottawa, and Toronto Sections Mini-Conference, Governor in 1987, and as a member of the Working Group on 1-in. (Segmented) Helical Format in 1977.

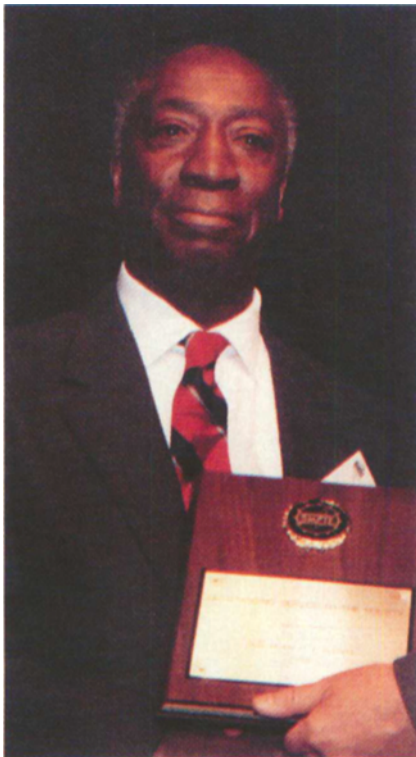
Charles H. Jablonski is managing director, engineering, of the Olympics for NBC, New York. He was previously chief engineer of WNET, New York. Jablonski has served as Chairman of the SMPTE New York Section, Chairman of the Working



Charles H. Jablonski receiving the Outstanding Service to the Society award.

Group on Stereo and Multichannel Audio Recording for Television (SMART), and has participated in over a dozen engineering committees. He has written and presented numerous technical papers at various conferences. He currently serves as a member of the Society's Financial Advisory Committee and of the 130th Conference Committee. He is also a member of the IEEE, NATAS, and Royal Television Society.

Richard I. King is manager, duplication, of the Borough of Manhattan Community College (BMCC) Media Center-Video Studio, New York City. He holds a B.S. degree in English from New York University. Prior to joining BMCC, he taught English and music appreciation, then was audiovisual director at P.S. 216 from 1959-1960. King has served as New York Section Manager and as Audiovisual/Motion Picture Chairman for the 1982, 1984, and 1986 SMPTE Technical Conferences, and he has been honored by the Society with four awards during his 12-year service. He is also a member of the Audio Engineering Society, New York Film/Video Council, American Film Institute, Museum of Modern Art, Smithsonian Institute, International Linguistic Assn., and the National Geographic Society.



Richard I. King, co-recipient of the Outstanding Service to the Society award.



C. Robert Paulson, co-recipient of the Outstanding Service to the Society award.

C. Robert Paulson is director of television/graphics marketing, Artel Communications Corp., Hudson, Mass. He holds an M.S.E.E. degree from Dartmouth College. Paulson participated in the development and first marketing of such breakthrough products as multitrack master audio recorders, consumer stereo tape, quad and helical VTRs, and time base correctors. Since the early 1960s he has been an active participant on several SMPTE committees, including New Technology, TRRT, WG-SVS, WG-D1 DTTR, and many others. He has served as the Chairman of the Study Group on Video Disc (1977-82), Secretary of the Working Group on D2 Digital Television Tape Recorder (1987), organizer and presenter, New England Section Teleconferences (1987 and 1988), and as technical program organizer, session chairman, or author on almost every SMPTE conference since the early 1970s. He also served as chairman of the New England Section during 1979-1981. An active writer for technical journals and trade magazines, Paulson is the author of the *ENG/Field Production Handbook* (1976); *ENG/EFP/EPP Handbook*, (1981); and contributing author, *International Teleproduction Society (ITS) Handbook*, (1986), in addition to lecturing at meetings and graduate schools on electronic communications technology. He is also a member of the IEEE, AES, SBE, ITVA, and AFCEA.

The Presidential Proclamation

The Presidential Proclamation recognizes individuals of established and outstanding status and reputation in the motion-picture and television industries worldwide.

The Presidential Proclamation for 1988 is awarded to **John Barry**, in recognition of his innovative leadership in the motion-picture industry worldwide and his many years of support in SMPTE activities; **Roland G. F. Chase**, in recognition of his technical and management leadership in the motion-picture industry and his years of support of the SMPTE and its sister society, the BKSTS; **Robert M. Smith**, in recognition of his technical leadership in the motion-picture and television laboratory industries and his many years of continued support in SMPTE activities; and **Heinrich L. Zahn**, in recognition of his many years of technical innovation and leadership in the television industry and his years of support in SMPTE activities.

John Barry is a consultant in Sydney, Australia. He was formerly managing director, John Barry Group Pty Ltd. Barry has attained outstanding success in providing a technological service to the motion-picture industry worldwide. He served as chairman of the Australian Section from 1980 through 1981; as Governor-at-Large for the Australia and South Pacific area, 1981-1984; and he was very active in organizing Sound & Vision '84, the first overseas SMPTE convention, held in Sydney. He was honored with the 1985 Citation for Outstanding Service to the Society.



John Barry, co-recipient of the Presidential Proclamation.



Roland G. F. Chase, co-recipient of the Presidential Proclamation.

Roland G. F. Chase is chairman of Colour Film Services Ltd., London, England, a group of companies he founded in 1948 as a motion-picture film laboratory. He has been directly concerned with many innovative technical developments and services. Chase is a Fellow of the SMPTE, an Honorary Fellow of the BKSTS, Past-President of BKSTS, a member of the Royal Television Society, and he also serves on the Board of Management of the British Board of Film Classification. He has been honored with the Award of Merit by the BKSTS.

Robert M. Smith, Du Art Film Laboratories, Inc., is executive vice-president, Du Art Film Laboratories, Inc., and president, Du Art Video, New York City, where he has been employed for the past 35 years. He is a Fellow of the SMPTE and of the BKSTS; member of the FTRG (German Television Society); member of the Academy of Motion Picture Arts and Sciences; and a member of the National Television Academy of Arts and Sciences, serving as chairman of its Engineering Award Technology Committee for the past 11 years. Smith has served the Society in many capacities, including that of President in 1979-1980, Past-President in 1981-1982, and as a member of the Board of Governors from 1968-1983. He was previously honored by the Society with the 1987 Eastman Kodak Gold Medal Award.

Heinrich L. Zahn has just retired



Edna Smith accepting the Presidential Proclamation for her husband, Robert M. Smith.



Heinrich Zahn, co-recipient of the Presidential Proclamation.

from BTS Broadcast Television Systems, Darmstadt, West Germany. He is now active in standardization work for SMPTE, ANSI, and the IEC, and in consulting, teaching, and international representation. Zahn is the holder of more than 30 patents and has been involved in the design and development of many innovative developments such as the iconoscope camera, image orthicon camera, continuous-motion and pull-down TV projectors, and several videotape and cassette recorders and production systems, among others. He is the author of numerous articles covering topics in the fields of television and video-

tape recording, which have appeared in the *SMPTE Journal* and in German publications. He has presented more than 30 papers at technical conferences for the SMPTE, FTG, IEEE, IREE, FKTG, DKS, ICE, and IBS.

Zahn was made a Fellow of SMPTE in 1978, and was honored by the Society with the Agfa-Gevaert Gold Medal Award in 1981. He serves on several committees, study groups, and working groups of the SMPTE, ANSI, and the IEC, and has participated in a number of European symposia on television.

The Journal Award

It is the purpose of this award to recognize the two outstanding papers originally published in the Journal of the Society during the previous calendar year; one in the field of motion pictures and the other in the field of television.

Motion Pictures

The 1987 Journal Award for a motion-picture article is presented to Steven J. Powell, John C. Norris, and Stephen W. Spakowsky for their article, "Eastman Color High-Speed Daylight Negative Films 5297 and 7297," published in the July 1987 SMPTE Journal.

Steven J. Powell holds the position of photographic engineer with the Motion Picture Development Group, Eastman Kodak Co., Rochester, N.Y. After graduating from the University of Minnesota with a B.E. in chemical engineering, he joined Kodak in 1972. Powell has been involved in the development of a variety of color print film and camera negative products as well as film transfers to video. He has authored or co-authored several film and video-related papers, many of which have appeared in the *SMPTE Journal*.

John C. Norris holds the position of director of product planning, Eastman Kodak Co. He has been with the company for 24 years. Norris attended the Carnegie Institute of Technology, graduating with a B.S. degree in chemical engineering. From 1964 to 1974 at Kodak, he assisted in the development of several of the company's motion-picture products and had responsibility for product evaluation.



Stephen W. Spakowsky, John C. Norris, and Steven J. Powell, co-recipients of the Journal Award for the best motion-picture paper.

Norris described his engineering activities during that ten-year period in numerous technical papers that were published in the *SMPTE Journal*.

In 1974 Norris assumed a somewhat different role at Kodak, becoming more involved in technical sales for the Motion Picture and Audiovisual Dept., responsibilities which required him to work in the company's Hollywood, Dallas, and New York City markets. While in Dallas and New York, he organized seminars for film producers, motion-picture laboratory technicians, and college students. In 1986, Norris returned to the Rochester corporate headquarters, where he is currently director of product planning for motion-picture products.

Norris served as chairman of the SMPTE Dallas/Fort Worth Section, and in 1983 as a Society Governor, in addition to holding various offices for the Hollywood and New York Sections. He is also a member of the BKSTS.

Stephen W. Spakowsky has been involved in motion-picture product development for 15 years, following his graduation from Worcester Polytechnic Institute with a B.S. degree in chemical engineering. He played a key role in the development of Eastman Color Print 5384 and Eastman Color Negatives 5293, 5294, 5295, 5297, and 7292, as well as the new Eastman Color Intermediate 5243. He is currently working on new and improved Eastman color negative products.

Spakowsky was recognized by the

Society with the SMPTE Journal Award for 1982. He has also been honored with two Academy of Motion Picture Arts and Sciences technical and scientific awards and a 1982 Emmy Award for his work in film.

Television

The 1987 Journal Award for a television article is presented to William E. Glenn and Karen G. Glenn for their article, "HDTV Compatible Transmission," published in the March 1987 SMPTE Journal.

William E. Glenn is director of the New York Institute of Technology,



William E. Glenn, co-recipient of the Journal Award for the best television paper.

Science and Technology Research Center, Dania, Fla. He holds a B.S.E.E. from Georgia Institute of Technology, and the M.S. and Ph.D. degrees in electrical engineering from the University of California at Berkeley.

While at the GE Research Laboratory in Schenectady, N.Y., in the 1950s, Glenn invented the light valve television projector Talaria. He holds over 100 patents in the fields of biomedicine, ultrasound, advanced television technology, mass spectrometry, and acoustics. From 1973-74 he held the position of director of research at CBS Laboratories. He is presently involved in research and development projects on HDTV transmission systems, a NASA project on design of video systems for use in space, and the development of a solid-state sequel to the light-valve projector.

Glenn was recognized with an Emmy Award in 1978 for a digital noise reducer developed at CBS; and as co-recipient with Karen G. Glenn, was presented with the ICCE 1987 Conference Award for the most outstanding paper. He was the recipient of the I-R 100 award and the SPSE Kosar Memorial award, as well as the McCarthy Award for most outstanding alumnus from Georgia Tech in 1960. In addition to the SMPTE, Glenn is a member of the Association for Research in Vision and Ophthalmology, the Optical Society of America, and the Acoustical Society of America.



Karen G. Glenn, co-recipient of the Journal Award for the best television paper.

Karen G. Glenn holds the position of consultant in visual psychophysics, New York Institute of Technology, Science and Technology Research Center, Dania, Fla. Since 1981, Glenn has served on the faculty of the University of Miami School of Medicine, and she is currently co-principal investigator on an NIH-funded research project on the biological basis of inherited reading disorders. She holds a Ph.D. in experimental psychology from Boston University and was a post-doctoral Fellow at Harvard Medical School.

Together with Dr. William Glenn, she was the co-recipient of the ICCE 1987 Conference Award for the most outstanding paper. She is a member of the Society for Neuroscience, the American Psychological Association, and the Association for Research in Vision and Ophthalmology.

The Agfa-Gevaert Gold Medal Award

It is the purpose of this award to honor the recipient by recognizing the individual's outstanding leadership, inventiveness, and/or other achievements in the research, development, or engineering of new techniques and/or equipment which result in a significant improvement to the interface between motion-picture film and television imaging systems, whereby the combined advantages both contribute to the further development of visual communications systems.

The 1988 SMPTE Agfa-Gevaert Gold Medal Award is presented to **Yoshio Ozaki**, senior project engineer, Sony Corp., for his research which led to the development of the electron beam recording system used to transfer 1125/60 HDTV to 35mm film. This includes the first two feature-length movies originated in HDTV. The electron beam recording system has been operational since 1986.

Yoshio Ozaki has been with Sony Corp., Atsugi, Japan, since 1963. In 1977 he developed the 8mm telecine projector VEP-1000 (BM-2100), and the 18, 24, still ~ 54 frame/sec variable speed for both 60 and 50-field TV systems. In 1981 he developed the 8mm 18 frame/sec sound kinescope recording system, and in 1983, the 1124/60 system 35mm film and electron beam recorder for picture and



Yoshio Ozaki, recipient of the Agfa-Gevaert Gold Medal Award.

stereo optical sound track. In 1987, his 30 frame/sec EBR film transfer was completed and demonstrated at the SMPTE Technical Conference. Ozaki is the holder of more than 30 patents.

The Eastman Kodak Gold Medal Award

It is the purpose of this award to honor the recipient by recognizing outstanding contributions which lead to new or unique educational programs utilizing motion pictures, television, high-speed and instrumental photography, or other photographic sciences. The award shall recognize developments in equipment, systems, or instructional applications which result in advancing the educational process at any or all levels.

The Eastman Kodak Gold Medal for 1988 is presented to **Jan W. Varossieau**, in recognition of his pioneering efforts in scientific filmmaking in the Netherlands and his life-long contributions to the integration of audiovisual media in university teaching.

Jan W. Varossieau is retired as director of the Educational Media Institute, University of Utrecht, The Netherlands. He is now working as a consultant in audiovisual matters. Varossieau is a founder/member of the Netherlands Scientific Film Association (NWWFT), serving as honorary secretary, 1951-1967, and as president from 1967 to 1971. His career includes involvement in a large num-

ber of European committees on audiovisual matters. In honor of his 25 years of service at the University of Utrecht, a one-day symposium was held on the use of audiovisual media in the University.

Varossieau is the author or co-author of over 60 scientific films. His main interest is in integrating the audiovisual media in the curricula of the university to facilitate learning, especially in the field of biology, the adaptation of lecture rooms for this purpose, and the use of AV in developing countries. He began his career in the Netherlands, and in 1938 he relocated to Indonesia. After World War II ended in the Far East, he left for Australia, where he worked on scientific films until his return to Holland in 1946. He speaks several languages, including English, German, French, Indonesian, and Dutch.

Varossieau has lectured at the Netherlands Film Academy at Amsterdam and the University of Utrecht. He is a Life Fellow of the SMPTE, has served on the Progress Committee, and is a Fellow of the Royal Photographic Society of Great Britain. His professional associations and honors cover many countries and are too numerous to list here.

The John Grierson International Gold Medal Award

It is the purpose of this award to honor the recipient by recognizing significant technical achievements related to the production of documentary motion-picture films.

The 1988 John Grierson International Gold Medal Award is presented to **Donald Brittain** for his many achievements as director, producer, and writer of some of the most prominent documentary films produced in Canada.

During Brittain's 33-year career, he has directed many memorable films, including: *Bethume, Ladies and Gentlemen, Mr. Leonard Cohen, and Memorandum*. His films have been seen at all the world's major film festivals and his international awards now number over 70. Three of the films he has written have been nominated for Oscars. Probably Brittain's most ambitious project to date is his 1987-1988 production of the life of Mackenzie King, Canada's Prime Minister for 22 years during the period from 1921-1948, presented as a

television special lasting several hours.

Donald Brittain, Donald Brittain Associates Ltd., is acknowledged as Canada's foremost documentary filmmaker, best known for his portraits of famous Canadians and his observations on Canadian politics. Born in Ottawa, Brittain attended Queen's University in Kingston and worked as a journalist, traveling extensively through Europe, Mexico, and Africa. In 1955 he returned to Canada and joined the National Film Board, where he worked until 1968, when he was invited to Japan to produce a multiscreen project for Expo '70. After his return to Canada, in the period between 1968 and 1976, he directed 15 films, including *Volcano: An Inquiry into the Life and Death of Malcolm Lowry*, which won six Canadian Film Awards. He is now involved in the freelance writing, directing, and producing of documentaries, specials, and miniseries for the CBC and National Film Board of Canada.

Brittain has received many honors, among them the degree of Honorary Doctor of Letters from York University, Toronto; an International Emmy, New York; Grand Prizes, Venice and Leipzig; Academy Award nominations, and 28 Canadian Film Awards. He is a member of the Royal Canadian Academy of the Arts, the Canadian Academy of Motion Pictures and Television, and the Alliance of Canadian Cinema, Radio and Television Artists.



Donald Brittain, winner of the John Grierson International Gold Medal Award.



William G. Hargreaves, recipient of the Herbert T. Kalmus Gold Medal Award.

The Herbert T. Kalmus Gold Medal Award

It is the purpose of this award to honor the recipient by recognizing outstanding contributions in the development of color films, processing, techniques, or equipment useful in making color motion pictures for theater or television use.

The 1988 Herbert T. Kalmus Gold Medal Award is presented to **William W. Hargreaves** in recognition of his work in the design, engineering, and construction of motion-picture film processing and ancillary equipment, particularly the magnetic drive processing machine.

William W. Hargreaves is general manager, director, and head of design for Filmlab Engineering Pty. Ltd., Sydney, Australia, which he co-founded in 1970. His career spans 32 years of engineering in the film industry. Hargreaves designed the first successful magnetically driven demand drive processing machine (1976); a computerized soundtrack processing system for precise development of soundtrack negative (1985); and the first successful magnetically driven high-speed sprocket drive processing machine (1986). He was also a member of the development team producing the new range of Filmlab digital analyzers and computer-controlled printers.

Hargreaves is a Fellow of the BKSTS and a member of the Australian Institute of Engineering Associates Ltd.



Barrett E. Guisinger, winner of the Alexander E. Poniatoff Gold Medal.

The Alexander M. Poniatoff Gold Medal for Technical Excellence

It is the purpose of this award to honor the recipient by recognizing outstanding technical excellence of contributions in the research or development of new techniques and/or equipment that have contributed significantly to the advancement of audio or television magnetic recording and reproduction.

The 1988 Alexander M. Poniatoff Gold Medal for Technical Excellence is presented to **Barrett E. Guisinger** for technological advancements that facilitated reliable recovery of tape signals of substantially reduced wavelength. These advancements in the record/reproduce process understanding permitted practical design of the world's first commercial digital videotape recorder.

Barrett E. Guisinger is vice-president, technology, of Datatape, Inc., Santa Clara, Calif. He holds a B.S. degree from UCLA and also attended Stanford University. Guisinger began his career as an engineer with Ampex Corp., and has held various engineering and administrative positions with a number of firms. In 1976 he began exploring, with Sony Corp., the possibility of establishing a U.S.-based engineering facility to combine U.S. innovativeness with Japanese production. In 1977 Sony approved the creation of the Sony Technology Center, Inc. Guisinger joined Datatape, Inc., in 1988, where he is currently establishing a technology center for the de-

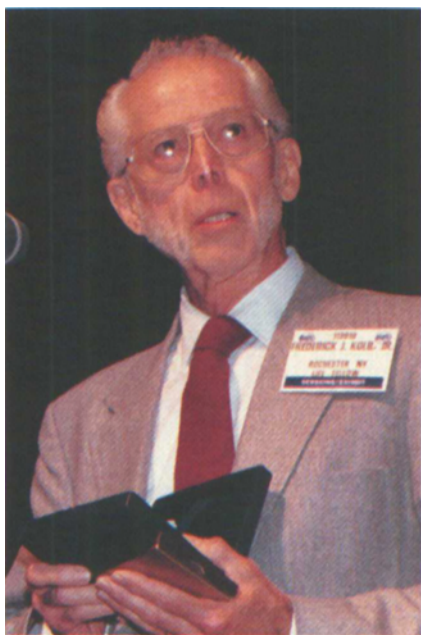
sign and development of magnetic recording systems.

Guisinger has been granted 18 U.S. patents for his inventions. He was the recipient of the 1981 Communications Products Group Award for the development of the HDVS videotape recorder and the 1982 Masaru Ibuka Award for contributions to HDVS development. This marked the first time either of these awards were given outside Japan. One of his papers, presented at the 1973 SMPTE Technical Conference, was published in the February 1974 *SMPTE Journal*.

The Samuel L. Warner Memorial Award

It is the purpose of this award to honor the individual by recognizing outstanding contributions in the design and development of new and improved methods and/or apparatus for sound-on-film motion pictures, including any step in the process.

The 1988 Samuel L. Warner Memorial Award is presented to **Frederick J. Kolb, Jr.**, in recognition of his contributions to the development of magnetic striping formulations for 16mm and 8mm camera and print films; for numerous significant contributions to the understanding of the physical performance of motion-picture film as it affects audio performance; for long-term efforts in the field of audio standardization; and for always bringing a high level of techni-



Frederick J. Kolb, Jr., recipient of the Samuel M. Warner Memorial Award.

SMPTE Journal, January 1989

cal expertise and precision to these activities.

Frederick J. Kolb, Jr., is now a consultant, following his retirement from Eastman Kodak Co. He earned B.S., M.S., and Sc.D. degrees from MIT. During his career with Kodak from 1942 through 1986, he worked in various areas of motion-picture film, television recording, and image processing.

Kolb is an active member of the SMPTE, and has served as chairman of several engineering committees and subgroups. Eighteen of his papers have been published in the *SMPTE Journal*, and he serves as U.S.A. Specialist for ISO/TC36 and as a member of TAG. Kolb has previously been honored with the SMPTE Journal Award (1949) and the MIT Walker Award. He is a member of the IEEE, IEEE Magnetics Society, BKSTS, SPSE, AAAS, ACS, AIChE, and Sigma Xi, and a Fellow of Tau Beta Pi.

The Progress Medal Award

It is the purpose of this award to honor the individual by recognizing outstanding technical contributions to the progress of engineering phases of the motion-picture and/or television industries.

The 1988 Progress Medal, the premier award of the Society, is presented to **Kerns H. Powers**. For almost 40 years, Dr. Powers has created an ongoing series of ideas, inventions, and research projects directed towards theoretical and applied improvements in communications systems. His work has contributed to the development of practical color television systems and new television signal processing techniques. Early in his career he was part of the team at RCA Laboratories that pioneered color television development and ultimately produced the NTSC color television system. He continued to pursue scientific innovation through a series of developments in communications theory and practice, including advances in data rate compression for digitized video signals and new approaches to high-definition television and augmented NTSC television systems.

Dr. Powers' contributions to the work of SMPTE have been numerous and important. He was an early member of the SMPTE Committee on New Technology and served as chair-



Kerns H. Powers, winner of the Progress Medal Award.

man for four years. He served as advisor to SMPTE Engineering Vice-Presidents and was appointed to represent SMPTE at many national and international technical meetings. He made important contributions to the work of the special SMPTE engineering committees whose efforts culminated in SMPTE, EBU, and eventually worldwide support of the 4:2:2 digital television sampling specification. This specification gave birth to CCIR Rec. 601, the universal component digital television standard in use the world over.

Because of the fundamental and long-lasting nature of the many scientific and engineering contributions by Kerns H. Powers to our special technologies, he is an exceptional example of a person dedicated to technical progress and thus richly deserves the 1988 SMPTE Progress Medal Award.

Kerns H. Powers retired from RCA in 1987 after a 35-year career in communications engineering, specializing in television. He is now a consultant with the David Sarnoff Research Center, Princeton, N.J.

After graduation from the University of Texas in 1951, Powers joined RCA Laboratories to work on dot sequential television, the forerunner of NTSC. Over the years at RCA, his work involved high-resolution radar, ELF transmission, data communication, satellite communication, video-disc, and enhanced definition television. He received B.S.E.E. and M.S.E.E. degrees from the University of Texas and the Sc.D. from MIT,

holds 15 issued patents, and has published numerous technical papers. Among the honors Dr. Powers has received are the Forty-One for Freedom Award of the U.S. Navy in 1967, and the Outstanding Paper Award at ICCE in 1986. He was also chosen to deliver the prestigious Schoenberg Lecture before the Royal Television Society in 1987. Powers is a Fellow of the SMPTE and the IEEE, and a member of ATSC, CCIR, CATS, Tau Beta Pi, Eta Kappa Nu, and Sigma Xi.

Honorary Membership Award

The distinction of Honorary Membership in the Society is presented to living pioneers whose basic contributions when examined through the perspective of time represent a substantial forward step in the recorded history of the arts and sciences with which the Society is most concerned. This is the highest grade of membership and greatest distinction that can be conferred by the Society.

Honorary membership is bestowed upon **Stefan Kudelski** in recognition of his distinguished career in the engineering and advancement of high-

quality sound recording. His achievements include the development of the lightweight Nagra recorder and the use of crystal-controlled camera drives which made possible high-quality sound recordings in remote locations. Kudelski has been the recipient of numerous awards, including the Academy Award for Merit for Scientific or Technical Achievement and the SMPTE Samuel L. Warner Memorial Award.

Honorary Membership is awarded to **Kenjiro Takayanagi** in recognition of his long and distinguished career in the pioneering research and development of television. Often referred to as the "Father of Japanese Television," he has written many papers since his first "Experiments on Television" was published in 1928. Professor Takayanagi has undertaken intensive research and his many inventions have led to the success of electronic television. His first video transmission took place in 1926. In a life devoted to television research, Professor Takayanagi holds over 200 patents in Japan.

Stefan Kudelski is president of Kudelski S.A., Cheseaux, Switzerland.



Stefan Kudelski, recipient of the Honorary Membership Award.

Some of the highlights of his career include the design and management of research and development on various Nagra products, including Nagra I, Nagra II, Nagra III, Nagra SN (pocket size), Nagra IV, Nagra IS, TRVR, TI (instrumentation), TA (twin capstan audio), Nagrafax weather map miniature receiver; Ampex Nagra VPR-5, a light C-format video recorder, and work on stabiliza-



Award winners at the 130th Conference: (back row, L-R) John Barry, Heinrich Zahn, Roland Chase, William Hargreaves, Barrett E. Guisinger, Frederick J. Kolb, Jr., Shulchi Nakayama, Donald Brittain, Steven J. Powell, Stephen W. Spakowsky, C. Robert Paulson, and Charles H. Jablonski. Front row, L-R), Mrs. Robert Smith, Kenjiro Takayanagi, Stefan Kudelski, Kerns H. Powers, Karen G. Glenn, William E. Glenn, John Norris, and Yoshio Ozaki.

tion of the video camera by the "artificial horizon" gyro system.

His present work is focused on the D-1/MII 2179 digital instrumentation recorder, its application to high-definition television digital recording and D-2 formats, and digital audio recording for the motion-picture industry. Kudelski received an honorary doctoral degree from the Ecole Polytechnique Federale de Lausanne, Switzerland, in 1986. His many distinctions include an Academy of Motion Picture Arts and Sciences Award of Merit for Outstanding Achievement, an Oscar, the SMPTE Samuel L. Warner Memorial Award, the AES Gold Medal Award, the IEEE Centennial Medal, the SMPTE John Grierson International Gold Medal Award, and several Academy of Television Arts and Sciences Emmy awards. In addition to his membership in SMPTE, he is an Honorary Member of the Audio Engineering Society (AES) and the British Kinematograph, Sound and Television Society (BKSTS).

Kenjiro Takayanagi holds the title of supreme advisor, Victor Co. of Japan, Ltd. (JVC), Tokyo. Beginning his study of television in 1924, Ta-



Kinjiro Takayanagi, recipient of the Honorary Membership Award.

kayanagi devoted all of his time to its research and development. Despite many problems, he completed the first practical all-electronic television in 1935 by developing the iconoscope and cathode ray tube. In 1959 he invented the world's first two-head videotape recorder. This patented technology became the fundamental technological basis for the VTR, which became one of the most widely used products for broadcasting, in in-

dustry, and at home.

Takayanagi, who is known as a pioneer in Japanese television, served as chairman of the Motion Picture and Television Society of Japan. He is an Honorable Member of that society and a member of the board of directors of the Radio Engineering and Electronic Association; as well as a member of the Electronic Industry Association of Japan, Radio Council of Japan's Ministry of Posts and Telecommunications, Broadcast Council of NHK, and the Technical Council of Japan's Ministry of International Trade and Industry. He has personally contributed a substantial amount through grants and subsidies to the research and study of electronics and technology.

Throughout his life, Takayanagi has received many honors for his contributions and achievements, including an official commendation by ITU. The Emperor of Japan awarded him The Medal with Purple Ribbon; The Order of Sacred Treasure, Gold Rays with Neck Ribbon; The Order of Sacred Treasure, Gold and Silver Star, and The Order of Culture. In 1987 he received the honorary degree of Distinguished Honorary Professor from the University of Alabama.

Fellows Luncheon

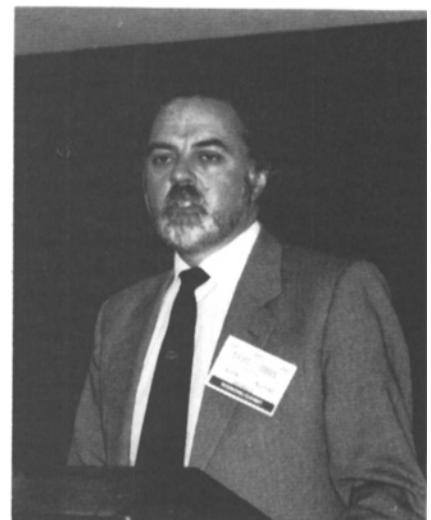
The annual SMPTE Fellows Luncheon was held Sunday, October 16, in the Astor Ballroom of the Marriott Marquis Hotel. The luncheon is held to honor newly elected Fellows, to introduce them to their peers, and to present them with their plaques. Attendance is limited to Fellows and Life Fellows.

A reception, sponsored by Magna-Tech Electronic Co., Inc., preceded the luncheon.

SMPTE President M. Carlos Kennedy opened the event. He then introduced the guest speaker, former SMPTE President Leonard A. Coleman (1983-1984). Following Coleman's comments, the plaques were presented to the 14 newly elected Fellows.



SMPTE President M. Carlos Kennedy speaking at the Fellows Luncheon.



BKSTS President David L. Gibbs addressing the Fellows.

Pride

By Leonard F. Coleman

Fellow Fellows and fellow friends: Recently I celebrated my association of 40 years with Eastman Kodak Co. When I attended a party to honor those who have been with the company from 25 to 40 years, I looked around at the people there and was struck by the look of pride I saw in their faces. It was a look that mirrored the pride of accomplishment they felt in their hearts.

Here at SMPTE I also see pride — in the number of years some of you have been associated with the Society and in the honor of being selected as Fellows.

Throughout my association with SMPTE, many important and sometimes stressful events have occurred. Our headquarters has relocated twice from its original offices in New York City — first to Scarsdale and then to White Plains, N.Y.

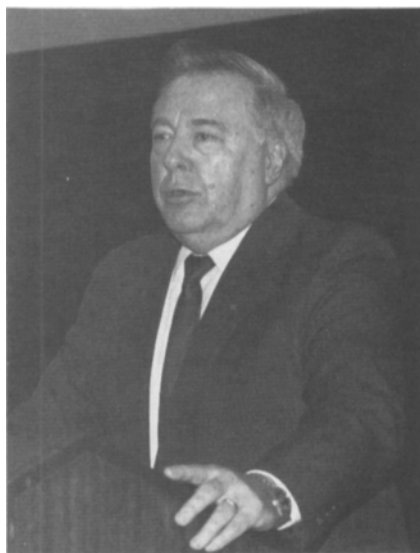
We've seen the establishment of training programs for sections managers, governors, and engineering committee chairmen. Charles Anderson, Bill Hedden, Bob Smith, and I were involved in the first training session for local sections managers and engineering committee chairmen.

One of the most important events in the history of the SMPE was the modification of its name to include the new technology of television, thus signifying a major culture change.

The way in which elections for officers are handled has been revised. Candidates for President are no longer nominated on the basis of geographical location or discipline, but on their merits as the best qualified persons for the job.

We have seen a change in location of our West Coast technical conference from the Century Plaza Hotel to a much larger facility, the Los Angeles Convention Center. This convention has grown to a size unimagined at the inception of the first event of its kind.

The Society has had a number of different Executive Directors in the



Former SMPTE President Leonard F. Coleman, Fellows Luncheon guest speaker.

space of a few years, in itself an occasion for stress. This period of change began with Denis Courtney and continued with Don Breidt, Connie Scheetz, and most recently with Lynne Robinson, a superior director of a complex engineering society.

We have also adopted improved methods for the selection of officers as

well as Fellows. Two new directorships in the engineering and editorial fields were established as training spots for potential vice-presidents.

These were past events and looking forward to the future, Bill Connolly pointed out areas of improvement for the Society. He also stated that there is no other group better equipped to handle standardization than SMPTE.

I'm sure you're all aware of the requirements for selection as a Fellow. A Fellow is an individual who is not less than 30 years old and who has by his proficiency and contribution attained an outstanding rank among engineers or executives in the motion-picture, television, or related industries.

The current 1988 membership of the SMPTE totals 9360. Of this number, 217 are Fellows, and 191 are Life Fellows, for a total of 408. The percentage of Fellows and Life Fellows is 4.36% of the total membership.

Today, there is pride in Fellowship for the 14 newly elected Fellows. We all share your pride in this achievement and in your affiliation with the Society.

Thank you.

Elected Fellows — 1988

J. Wayne Caluger
Caluger & Associates

Gustavo Dato, Jr.
Retired from American Broadcasting Co.

Birney D. Dayton
Telecom Systems Group

Arthur E. Florack
Eastman Kodak Co.

Murray Forrest
Colorfilm Pty Ltd.

Frederick C. Franzwa
Eastman Kodak Co.

David L. George
Imagineering Ltd.

Richard R. Green
Cable Television Laboratories, Inc.

Frank J. Haney
Capital Cities/ABC, Inc.

Richard A. Hathaway
Ampex Corp.

Tomlinson Holman
Lucasfilm Ltd.

Nelson E. Meacham
Walt Disney Imagineering

John H. Streets
Merlin Engineering Works

John P. Watney
Ampex Corp.

This material consists of abridged excerpts from the remarks given by former SMPTE President Leonard F. Coleman, Eastman Kodak Co., Rochester, N.Y., at the Fellows Luncheon held in conjunction with the 130th Technical Conference in New York City.

Fellow Membership Committee

Harold J. Eady, *Chairman*
Ioan Allen
Blaine Baker
Gordon W. Ballantyne
John L. Baptista
John A. Barak
Stanley N. Baron
Paul R. Beck
Edward J. Burns
J. Wayne Caluger
John Carlson
Dominic J. Case
David A. Cmeyla
Kenneth P. Davies
Grant A. Dearnaley
Pol T. Descamps
Bernard L. Dickens
Edmund M. DiGiulio
Herbert E. Farmer
David K. Fibush
Michael T. Fisher
Joseph A. Flaherty

Arthur E. Florack
Murray Forrest
Donna Foster-Roizen
Maurice L. French
John C. Gates
David L. George
Frank J. Haney
Donald W. Henderson
Earl V. Higgins
C. Bradley Hunt
Charles H. Jablonski
M. Carlos Kennedy
Glenn Kennel
Stephen D. Kerman
Marty Kirkland
Rudolph J. Kryger
David P. Layne
Howard T. La Zare
Charles J. Lipow
Bebe F. McClain
Russell T. McMurtray
Rami Mina

Duane M. Muir
Charles B. Nairn
William C. Nicholls
Henri Olbrechts
Glen Pensinger
Robert H. Plummer
John P. Pytlak
Austin L. Reeve
Frederick M. Remley
Karl Renwanz
Robert J. Ringer
Richard K. Schafer
Glenn R. Shank
L. John Spring, Jr.
Richard J. Stumpf
Steven C. Tadzynski
Claude Tresidder
Robert Van der Leeden
J. David Walters
S. Merrill Weiss
Louis F. Wolf, Jr.
Irwin W. Young

New Fellows of the SMPTE

A Fellow of the Society is one who is no less than 30 years of age and who has, by his proficiency and contributions, attained an outstanding rank among engineers or executives of the motion-picture, television, or related industries.



J. Wayne Caluger

J. Wayne Caluger is president of Caluger & Associates, Nashville,

Tenn. His company is involved in the design and installation of broadcast television systems. He has received several prestigious honors for his activities in the television industry, topped by a 1976 Emmy Award, the Plaque Utah Scientific, for conceptualizing CSP 200/300 control panels. In 1982, he received the Society's Citation for Outstanding Service for planning and organizing the 1982 Television Conference, held in Nashville for the first time.

Caluger began his career in 1963 as a staff engineer at WDCN-TV. In 1969, he moved to WSM, Inc., and worked as a project engineer for the Opryland Complex.

He has been active on both the international and local levels of the SMPTE. He sat on the Board of Governors in 1984-85 and 1987-88, was Chairman of the David Sarnoff Medal Award Committee in 1985, 1987, and 1988, and was Technical Papers Chairman for the 1988 Television Conference. He has also been consistently involved in the Nashville Section of the SMPTE, serving as Manager and Section Chairman, and has helped to arrange high-quality programs for the section meetings. Ca-

luger also shares his time and talent with the Society of Broadcast Engineers, where he was named a Senior Engineer.

Caluger graduated from Hume-Tech in 1963. He now resides in Hendersonville, Tenn.

Gustavo Dato, Jr., is retired from the American Broadcasting Co., Los Angeles, Calif. He began his career in 1948 as a television engineer at KFI-TV. From there he moved to KTTV and then to Glen-Armistead.

As chief engineer at Glen-Armistead, Dato helped to develop Electrovision, a filming system which used television cameras to record movies for presentation in direct walk-in theaters. He was also a member of the team which developed the Milliken fast pull-down camera for television recording.

In 1964, Dato joined Rank Precision Industries, Inc. as a chief engineer. He switched gears in 1972 when he became a broadcast equipment salesman for RCA. He was hired by ABC as a technical operations manager in 1974. Dato received an Emmy Award as part of ABC's engineering

team covering the 1984 Summer Olympic Games.

Gustavo Dato is a past Chairman of the Hollywood Section of the SMPTE and a past president of the Society of Television Engineers of Hollywood. He has served as Associate Program Chairman and Assistant Auditor at SMPTE technical conferences.

Dato earned his B.S. in Engineering in 1944 from the U.S. Merchant Marine Academy. He received a First Class Radio License in 1946 from American Television Laboratories. He lives in Van Nuys, Calif.



Birney D. Dayton

Birney D. Dayton is vice-president of engineering and general manager, Telecom Systems Group, The Grass Valley Group, Grass Valley, Calif. Since he earned a B.S.E.E. degree in 1973 from the University of Nevada at Reno, Dayton has devoted considerable time to developing video products and holds seven patents. Most recently he has been involved in video fiber optics and broadband digital switching equipment.

While at The Grass Valley Group, Dayton designed most of the company's modular product line. He made a major contribution to the 440 router.

Dayton joined the SMPTE in 1983. He also belongs to the IEEE, ISHM, OSA, and the AFCEA. Birney Dayton currently lives in Nevada City, Calif.

Arthur E. Florack is engineering coordinator, Eastman Kodak Co., New York, N.Y. He manages the engineering services for film and videotape products for the East Coast.



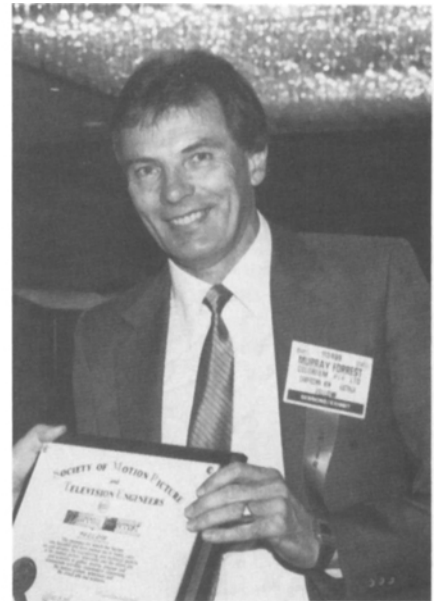
Arthur E. Florack

Florack has been with Kodak for more than 30 years, spending the first 12 years as a research chemist and the remainder as an engineer in the motion-picture division. He graduated from the University of Rochester with a B.S. degree.

Arthur Florack co-authored *Improving Broadcast Quality From Color Films*, published by the SMPTE in 1971. He was awarded the Citation for Outstanding Service to the Society in 1981 for continued support of the Ohio Section, having served as Manager, Secretary-Treasurer, and Section Chairman. Florack participated in the SMPTE Standards Committee and was influential in the formation of a start-up student chapter at Ohio University. He has also been active on the Emmy Awards Committee. Florack joined the SMPTE in 1967. He lives in Yardley, Penn.

Murray Forrest is chief executive officer, Colorfilm Pty Ltd., a group of companies comprising motion-picture film processing laboratories and film processing equipment manufacturers. Forrest is based in Camperdown, Australia. He joined Colorfilm in 1966 as a sales representative. During his career at Colorfilm, he has been responsible for developing the motion-picture laboratory processing machine. He also developed new technologies for film processing and devised new systems of process control.

After graduating from Edinburgh University with a degree in econom-

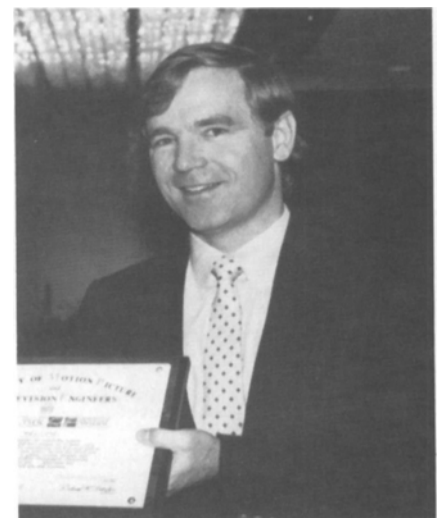


Murray Forrest

ics, Forrest spent two years at Swift & Blakely as a sales representative.

Forrest has been continuously active in the SMPTE for the last ten years. He is presently an International Governor of the Society. He has served the Australian Section as Manager and Section Chairman, and was a Co-Chairman of the committee for the first Australian Section International Conference and Exhibition in 1984. He also participated on committees for the 1986 and 1988 Technical Conferences.

Forrest is a member of the Screen Producers Association of Australia, Australian Cinematographers' Society, Australian Film Institute, Federation of Producers in Asia, BKSTS, and the ACVL. He currently lives in Carlingford, Australia.



Frederick C. Franzwa

Frederick C. Franzwa is technical project leader, Eastman Kodak Co., Rochester, N.Y., where he works with project teams to develop new motion-picture films and processes. His emphasis has been on systems analysis, color reproduction, processing techniques, and curve shape.

Franzwa earned a B.S. in chemical engineering from the Rose-Hulman Institute of Technology in 1972 and has been with Kodak ever since. He joined the SMPTE in 1981. Frederick Franzwa currently resides in Rochester, N.Y.



David L. George

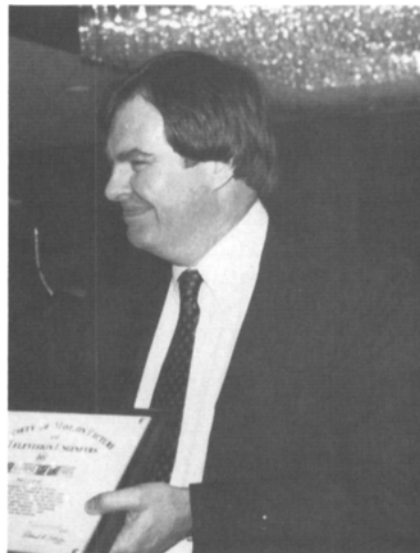
David L. George is president and chief operating officer, Imagineering Ltd., Don Mills, Ont., Canada. Prior to joining Imagineering in 1972, George was the communications design and planning engineer at Newfoundland Hydro and chief engineer of the Newfoundland Broadcasting Co.

David George is the director of Global Communications Ltd. and Ontel Communications, Inc. He is the acting vice-president of engineering at Global Television Network. Over the course of his career, George has been involved in many studio and transmission projects in Canada and the U.S., including pioneering work with new methods of distribution of television signals.

George has written or co-authored several industry papers. He graduated from Ryerson Polytechnical Institute, Ontario, with a Diploma of Engineering in 1960 and earned an M.B.A. from the University of Toron-

to in 1985. He was presented with the Broadcast Educational Association of Canada's Broadcaster of the Year Award in 1986.

David George is a past Chairman, Secretary-Treasurer and Manager of the Toronto Section of the SMPTE. He is a former counselor for the Ontario Association of Certified Engineers and Technologists, and a former president of the Association of Engineering Technicians and Technologists of Newfoundland. He now makes his home in Willowdale, Ontario.

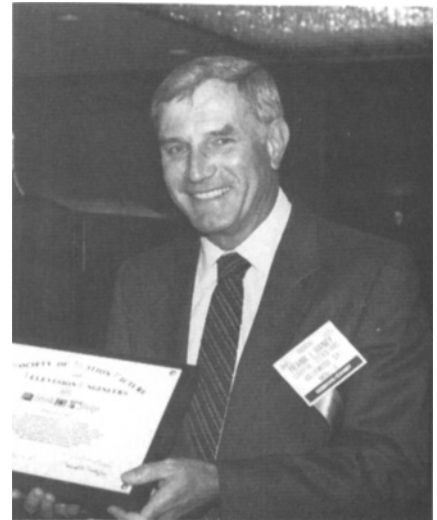


Richard R. Green

Richard R. Green is president and chief executive officer, Cable Television Laboratories, Inc., Cambridge, Mass. Prior to this career move made in October, Green was with Public Broadcast Systems, Alexandria, Va. Before joining PBS, Green was on special assignment to establish the Advanced Television Systems Committee, an industry-supported group funded to develop voluntary national technical standards for advanced television systems. Green has also worked for CBS, ABC, KIRO-TV, Boeing Scientific Research Labs, the University of Washington, and the Atmospheric Sciences Research Center.

He occupies leadership roles in the International Telecommunication Union and the North American National Broadcasters Association. He was recently elected vice chairman of the board of the Advanced Television Test Center. He is a member of the American Association for the Advancement of Science and the SMPTE.

Green has written more than 35 technical papers on topics from TV production to electro-optical and laser research. He holds a Ph.D. from the University of Washington, an M.S. from the State University of New York at Albany, and a B.S. from Colorado College.



Frank J. Haney

Frank J. Haney is director, engineering facilities, Capital Cities/ABC, Inc., Hollywood, Calif. He designs and installs electronic systems in television studios, recording and editing suites, and television mobile units and maintains a television plant. Haney has been with Capital Cities/ABC for more than 25 years. Prior to this, he worked at NASA, CBS Television Network, Paramount Pictures, Visual Electronics, and Viacom International. He graduated from Villanova University with a B.S.E.E. in 1950.

Haney won an Emmy Award for his work on the 1984 Summer Olympics. He has been a member of the SMPTE since 1960, and Editorial Director for Television from 1986 to 1988. He is a member of SMPTE's Working Group on High-Definition Electronic Production, was a Conference Program Chairman in 1987, and was a Co-Chairman for the 1988 Technical Conference. In 1987, Haney also served as the TV Progress Report Chairman. From 1956 to 1960, he sat on the TASO Committee, Panel 6.

Richard A. Hathaway is director of engineering, Ampex Corp., Redwood City, Calif., where he is responsible for all broadcast and data recording



Richard A. Hathaway

development. Hathaway has been involved in the design of video recorders for more than two decades. He has had 20 U.S. patents issued to him.

Richard Hathaway was honored with the SMPTE's Alexander M. Poniatoff Award for Technical Excellence in 1976 and received the Royal Television Society's Geoffrey Parr Award in 1978.

Hathaway holds a B.S.M.E. from the University of Illinois. He is a Registered Professional Engineer in Illinois and lives in Saratoga, Calif.



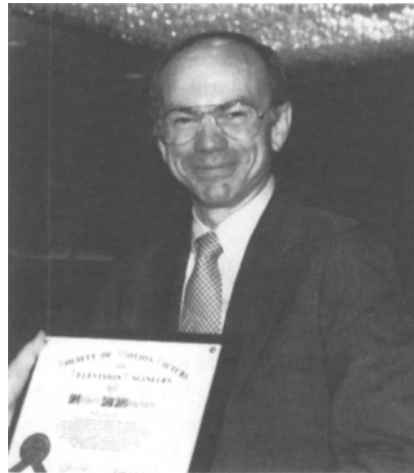
Tomlinson Holman

Tomlinson Holman is a corporate technical director of Lucasfilm Ltd., San Rafael, Calif., and assistant professor at the University of Southern California School of Cinema-Television. Holman began his career as an

audio design engineer at Advent Corp. In 1977, he founded Apt Corp., manufacturer of the Apt/Holman preamplifier and other high-fidelity equipment.

Holman joined Lucasfilm in 1980 and supervised the engineering for new facilities for all phases of film-making. Lucasfilm's *Return of the Jedi* was the first major film to be mixed at the new site. It was nominated for two sound-related Academy Awards. Holman received a U.S. patent for the THX Sound System. He is presently involved in developing Home THX for optimum presentation of film programs at home. He is also working on the CP-250 dubbing stage monitoring system.

Tomlinson Holman serves on the Board of Editors for the *SMPTE Journal*. He is a member of the ASA, IEEE, and BKSTS. He has presented papers at the technical conferences of the AES, SMPTE, IEE, and USITT. Holman graduated from the University of Illinois with a B.S. in communications.



Nelson E. Meacham

Nelson E. Meacham is senior project engineer, Walt Disney Imagineering, Glendale, Calif. He is responsible for the specification and design of show presentation systems for Disney theme parks around the world. Meacham worked for Walt Disney Pictures and WED, a division of Walt Disney Productions, before joining the Imagineering division.

While at Walt Disney, Nelson Meacham played a key role in the implementation of digital sound recording for motion pictures, including the first exhibition of digital sound reproduction in theatrical release for

the *Fantasia* soundtrack. He was granted a Time Energy Frequency Measurement License by the California Institute Research Foundation.

Meacham is active in the Society. He has served on the Board of Managers, the Sub-Committee on Audio and Post Production for Motion Picture and Television Entertainment Programming, and on the Education Committee.

He is also a member of the Academy of Motion Picture Arts and Sciences and the AES. He graduated with a B.S.E.E. from California State Polytechnic University at San Luis Obispo. Meacham lives in Studio City, Calif.



John H. Streets

John H. Streets is president, Merlin Engineering Works, a company specializing in custom broadcast VTRs. Streets has been with the Palo Alto, Calif., firm since 1969. He worked at Ampex, Westel, Spectra Physics, and Quest Engineering prior to forming Merlin.

Streets holds several patents, but considers the most significant to be a self-energizing air bearing scanner used on most VTRs and VCRs. He was honored with the 1969 Wescon Industrial Design Award of Merit and the 1969 Industrial Design Magazine Review Award for designing the Westel WR201.

He chaired the Society's David Sarnoff Medal Award Committee in 1986, and chaired the Alexander M. Poniatoff Gold Medal Committee in 1987. He was also the Chairman of

the SMPTE subgroup that developed the ANSI T14-220-30 Standard for Camera/Recorder Interface. Streets served on the SMPTE's Board of Governors from 1986-1987 and was the Papers Chairman for the 1986 Television Conference. He has presented several papers at SMPTE and IBC conferences.

John Streets completed a student apprenticeship at the Signals Re-

search and Development in Christchurch and the Royal Aircraft Establishment in Farnborough, U.K. He earned a Higher National Certificate in Telecommunications and Mechanical Engineering. In 1955, he was awarded a King George VI Fellowship for one year's study in the U.S., which he spent at Rennselaer Polytechnic. Streets currently lives in Redwood City, Calif.



John P. Watney

John P. Watney is principal engineer, Ampex Corp., Redwood City, Calif. His career at Ampex started in 1964, when he was involved in system control and image processing. Watney moved to the data systems division in 1974 to work on digital tape recording fundamentals. In 1983, he joined the Ampex video systems division. He is currently designing digital recorder systems.

Watney joined the SMPTE in 1983. He also belongs to the IEEE. He earned a B.S. degree and an M.S. degree from the University of Cape-town and an engineer's degree from Stanford University. He lives in Los Altos, Calif.



New Fellows proudly display their plaques. Bottom row, l. to r.: Richard A. Hathaway, Tomlinson Holman, Arthur E. Florack, Nelson E. Meacham, Frank J. Haney, John P. Watney. Top row: Murray Forrest, Frederick C. Franzwa, David L. George, J. Wayne Caluger, John H. Streets, Richard R. Green, Blrney D. Dayton. Chairman of the Fellow Nominating Committee, Harold J. Eady, top right.



The Fellows Luncheon in the Astor Ballroom of the Marriott Marquis Hotel.

Welcoming Reception

The welcoming reception, hosted by the SMPTE, was held Friday, October 14, in the Broadway Ballroom of the Marriott Marquis Hotel. The well-attended event provided a pleasant atmosphere for conference attendees to get to know one another before the hard work started on Saturday. Guests enjoyed an open bar and buffet. The reception started at 6:00 p.m. and lasted until after 8:00.

Blood Pressure

The Will Rogers Institute offered free blood pressure tests to conference attendees. Volunteers from the institute conducted the testing near the registration area. More than 340 people took advantage of this service. In addition to the blood pressure testing, the institute offered free booklets on such topics as stress, nutrition, smoking, heart disease, etc.

Coffee Club

Eastman Kodak Co. sponsored a coffee club at the Jacob K. Javits Center from 8:00 to 10:00 a.m. each morning of the conference. Registrants enjoyed fresh croissants, bagels, coffee, tea, and juice.

SMPTE Banquet

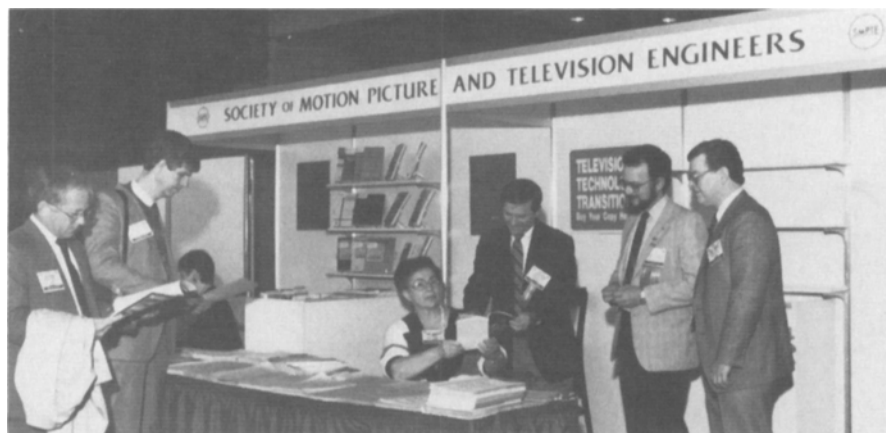
The annual banquet, held Tuesday evening, October 18, at the Marriott Marquis, was the usual high point of the conference. More than 300 people attended the gala affair. In keeping with the samba theme, guests were entertained by the Pe De Boi drum group and the Carnival Samba Dancers. After the formal entertainment and dinner, the guests danced to the sounds of the Jerry Jerome Orchestra. Banquet and Entertainment Chairwoman Linda Young, Du Art Film Labs, Inc., planned the evening.

SMPTE Booth

The SMPTE booth attracted a steady stream of visitors. Questions about membership in the Society, conferences, section meetings, and other SMPTE programs were answered by 130th Conference Membership Chairman Michael Johnson, Eastman Kodak Co., and SMPTE Membership Services Coordinator Daureen Matera. Approximately 120

new members signed up at the conference.

The SMPTE publications and test film tables, staffed by Julie Wood and Anne Seminara, respectively, were also busy spots. Eighty-eight SMPTE publications were purchased. Audiotapes of the papers presented were also for sale. Sonia Johnson fielded all types of questions at the information booth, while Mary Connolly was busy taking reservations for the luncheons and banquet.



Headquarters staff member Anne Seminara providing information to conference attendees.



The coffee club, a popular morning gathering spot.



Spouses Program Chairwoman Patricia G. Spicer carrying roses presented by Conference Vice-President Blaine Baker in recognition of her work for the spouses.



Banquet guests are entertained by the Pe De Boi drum group.

Spouses Program

A busy and varied program of events was arranged by Spouses Program Chairwoman Patricia G. Spicer. The 128 people participating

were treated to the best of New York's many attractions.

On Friday, October 14, a welcoming tea was held in the President's Suite at the Marriott Marquis Hotel. The group left at noon Sunday for a cruise on the *Spirit of New York*.

Monday morning's destination was the Noguchi Museum, followed by a visit to the American Museum of the

Moving Picture Image. The Water's Edge restaurant was the site for lunch.

Tuesday's highlight was a trip to the Metropolitan Museum of Art to see the Degas exhibit. Luncheon was held at the Sign of the Dove. On Wednesday, the group toured Gracie Mansion and visited the Forbes Gallery.

Association of Cinema and Video Laboratories (ACVL) Meeting

The Association of Cinema and Video Laboratories (ACVL) conducted a technical conference and forum on Friday, October 14, 1988, at the Marriott Marquis Hotel. Gary Barton, Eastman Kodak Co., presented the keynote speech, "Moving Images: A Look at the Business, Today and Tomorrow." The morning topic, "Shooting on Film — Post Production in Film and Video," was covered by post-production supervisors Susan

L. DeMarco, WGBH-NOVA Series, and Lisa Atkinson, Twilight Zone, and by filmmaker Warren Lieb, Lieb Productions, Inc.

After a break for lunch, "An Editor's Point of View — Nonlinear Random Access Electronic Editing of Feature Length Films," was covered. Editors Kert VanderMeulen, Andy Mondschein, and Michael Garvey spoke. A question-and-answer session followed. The second session for the

afternoon was "The New Generation of Color Film Analyzers." Donald M. Sheldon, Photo Electronics Corp.; Dr. Allen Colen, Bremson Data Systems, Inc.; Nigel Varian, Film Systems International; and Mark Levine, Hollywood Film Co., were the speakers.

The conference concluded with a panel discussion, "Laboratory Experience with the New Analyzers," and a question-and-answer period.

Acknowledgments

The annual conference would not have been the same without the support of its many sponsors. The Society wishes to thank the following companies and organizations for providing necessary services for the 130th Conference: *Banquet Entertainment*,

Agfa-Gevaert, Inc., Film Processing Corp., Filmline Technologies; *Banquet Reception*, Ampex Corp.; *Banquet Wines*, National Broadcasting Co.; *Blood Pressure Clinic*, Will Rogers Institute; *Coffee Club*, Eastman Kodak Co.; *Fellows Luncheon Re-*

ception, Magna-Tech Electronic Co., Inc.; *Honors and Awards Reception*, Ikegame Electronics (U.S.A.), Inc.; *Spouses Breakfasts*, Sony Corp.; *Theater*, Loew's Corp.



The equipment exhibit drew steady crowds throughout the show.

Equipment Exhibit

Two hundred motion-picture and television companies from around the world participated in the equipment exhibit, which was open from Saturday, October 15, through Tuesday, October 18. They occupied a total of 73,000 sq. ft. in the Jacob K. Javits Convention Center.

The exhibitors were quite pleased with the crowds, who poured in steadily during show hours. Physically, it was easier to get around than in previous years, since the exhibits and paper presentations were all at the same end of the building.

Attendees viewed new equipment and talked with design engineers, marketing representatives, and other company personnel. Hands-on demonstrations were often part of the displays.

List of Exhibitors

Abekas Video Systems, Inc.
Accom
Acmade International
Adams-Smith
Adcom Communications Inc.
A. F. Associates, Inc.
Alexander Batteries

The Allen Products Co.
AMEK/TAC US Operations
Ampex Corp.
AMS Industries
Amtel Systems, Inc.
Angenieux Corp. of America
Anton/Bauer, Inc.
Aphex Systems, Ltd.
Apollo Audio Visual
Arriflex Corp.
Asaca/Shibasoku Corp. of America
Aston Electronics, Inc.
Audio Precision, Inc.
Barco-Industries, Inc.
BCS BroadCast Store
Bencher, Inc.
Bi-Tronics, Inc.
BTS Broadcast Television Systems, Inc.
Calzone Case Co.
Cam-Lok, Inc.
Canon U.S.A., Inc.
Carpel Video, Inc.
Dwight Cavendish Co.
CEI Technology
Central Dynamics
Centro Corp.
Century Precision Optics
Cetec Vega
Alfred Chrosziel & OpTex Ltd.
Chyron Corp.—The Chyron Group
Cine 60, Inc.
Cinema Products
Cinematography Electronics, Inc.
CineMills Corp.
Cipher Digital, Inc.
Comprehensive Video Supply Corp.

Computer Prompting Corp.
Conrac Corp.
Corporate Communications Consultants, Inc.
H. L. Dalis Inc., Dalis Industrial Electronics
Dedotec USA, Inc.
Delsynchro, Inc.
DeSisti Lighting/DESMAR Corp.
Digital F/X, Inc.
Dolby Laboratories
Dubner Computer Systems, Inc.
Dynatech Corp.
Eastman Kodak Co.
Editing Machines Corp.
Editron USA, Inc.
Egripment U.S.A., Inc.
Eventide, Inc.
Evertz Microsystems, Ltd.
Fairlight Instruments, Inc.
Faroudja Laboratories
FGV Panther Corp. of America
Film Processing Corp.
Filmline Technologies
FOR-A Corp. of America
Forecast Installations, Inc.
Fostex Corp. of America
Frezzolini Electronics Inc.
Fries Engineering, Inc.
Fujinon Inc./Fuji Film
Gefen Systems
General Electric Co.
Geocam Corp.
G & M Power Products, Inc.
The Grass Valley Group, Inc.
Harris Video Systems

Harrison Systems, Inc.
 HEDCO (Hughes Elect. Devices Corp.)
 Karl Heitz, Inc.
 High Resolution Sciences, Inc.
 Hitachi Denshi America, Ltd.
 Hollister-Pearson
 Hollywood Film Co.
 Ikegami Electronics (U.S.A.), Inc.
 ILC Technology, Inc.
 Image Video Ltd.
 Innovision Optics
 Intelvideo, Inc.
 Intergroup Technologies, Inc.
 Roy Isaia/The Equipment Broker
 I.T.E.
 Jem-Fab Corp.
 The J-Lab Co.
 J&R Film Co./Goldberg/Moviola
 JVC/Paltex/Cinedco
 Kaleidoscope Camera Controls
 Kurzweil Music
 LEE Colortran, Inc.
 Leitch Video of America, Inc.
 Lexicon Inc.
 Light Sales, Inc.
 Listec Video Corp.
 Lowel-Light Mfg., Inc.
 LTM Corp. of America
 Magna-Tech Electronic Co., Inc.
 Magni Systems, Inc.
 Mag-Zon Inc., (Zonal)
 Martin Audio/Video Corp.
 Matthews Studio Equipment, Inc.
 McCurdy Radio Industries, Ltd.
 Merlin Engineering Works
 Microtime, Inc.
 Microwave Radio Corp.
 Midwest Communications Corp.
 Miller Fluid Heads (USA) Inc.
 Mitchell Camera Corp.
 Mitsubishi Electric Sales America, Inc.
 Mole-Richardson Co.
 Montage Group, Ltd.

Motion Picture Enterprises, Inc.
 Nagra Magnetic Recorders, Inc.
 NEC America, Inc., Broadcast
 Equipment Div.
 L. E. Nelson Sales Corp./Thorn-EMI
 Nema Electronics Intl., Inc.
 Rupert Neve Inc.
 New England Digital Corp.
 Nikon Inc.
 Nova Systems, Inc.
 Nurad Inc.
 O'Connor Engineering Labs
 Odetics, Inc./Broadcast Div.
 Oki Electric Industry, Ltd.
 Optical Disc Corp.
 Orion Research, Inc.
 Otari Corp.
 Panasonic Broadcast Systems Co., Div. of
 Matsushita Electric Corp. of America
 Peerless Sales Co.
 Perrott Engineering Labs., Inc.
 Philips Lighting Co.
 Photo Electronics Corp.
 Pinnacle Systems, Inc.
 Quantel
 Quantum/Weircliffe
 Rangertone/Multi-Track Magnetics
 Rank Cintel, Inc.
 Rank Precision Industries, Inc.
 Research Technology International/
 Lipsner-Smith Co.
 RF Technology, Inc.
 Rosco Laboratories
 Ross Video
 Sachtler Corp. of America
 Schneider Corp. of America
 Schwem Technology
 Sennheiser
 Sescom, Inc.
 Sigma Electronics, Inc.
 Skotel Corp.
 Solid State Logic, Ltd.
 Sony Corp. of America

Sound Ideas
 Sound Technology
 Sound Workshop Professional
 Audio Products, Inc.
 Soundmaster International, Inc.
 Spectra Cine, Inc.
 Steadi-Film Corp.
 Steenbeck, Inc.
 Strand Lighting
 Studer Revox America, Inc.
 Sylvania Lighting/GTE
 TASCAM/TEAC Corp. of America
 Techniform
 Tektronix, Inc.
 Telemetrics, Inc.
 Telepak San Diego
 Telescript, Inc.
 Telex Communications, Inc.
 3M Multi Division
 Tiffen Manufacturing Corp.
 Time Base Consoles
 Toko America, Inc.
 Trompeter Electronics, Inc.
 Truevision, Inc.
 TSM (Total Spectrum Manufacturing,
 Inc.)
 Ultimatte Corp.
 Unilux, Inc.
 Union Connector Co., Inc.
 Unique Business Systems
 Universe Stage Lighting, Inc.
 Ushio America, Inc.
 VEAM, Division of Litton Systems, Inc.
 Video Design Pro
 Video Services Unlimited
 Video Storage Concepts
 Videomedia
 Videotek, Inc.
 Vinten Equipment Inc.
 Wide Range Electronics Corp.
 Winsted Corp.
 Zaxcom Video



Attendees watch a demonstration of the latest technology with interest.

Papers Presented at the 130th Technical Conference

Conference Opening: Innovations in Imaging and Sound

Introduction: *Edward J. Burns*, Program Chairman, Capital Cities/ABC, Inc.

Welcoming Address: *M. Carlos Kennedy*, SMPTE President, Ampex Corp.

Engineering Report: *Stanley N. Baron*, SMPTE Engineering Vice-President, NBC, Inc.

Keynote Address: *William G. Connolly*, Sony Corp.

Archival and Lighting

1. **Todd-AO: A History**, *John Belton*, Rutgers University, New Brunswick, N.J.
2. **Technological History of Film and Video at the American Museum of the Moving Image**, *Richard Koszarski*, American Museum of the Moving Image, Astoria, N.Y.
3. **The Archival Quality of Film on Cellulose Triacetate**, *Karel Brems*, Agfa-Gevaert N.V., Mortsel, Belgium
4. **A Proposed Alternating Current Power Distribution System for Motion Picture and Television Location Lighting**, *Richard D. Thompson and Douglas G. Fessler*, Thompson Associates & Professional Design Products, Van Nuys, Calif.
5. **The Application of Electronic Ballasting with Medium Arc Metal Halide Lamps**, *F. Stephen Henry*, OSRAM Corp., Newburgh, N.Y.
6. **HMI Lighting for High-Speed Photographic Applications**, *Paul Kiankhooy*, The Lightmaker Co., Valencia, Calif.
7. **The Care and Handling of Hazardous Nitrate Film at UCLA's Unique Projection Facilities**, *Jess Daily*, UCLA Dept. of Film and Television, Los Angeles, Calif.
8. **Maximizing the Life of Your Videotapes**, *Jim Wheeler*, Ampex Corp., Redwood City, Calif.

Digital Distribution/Transmission of TV Signals

9. **Overview: Concepts of Digital Distribution Specifically Emphasizing Bit Rate Reduction Techniques**, *Hugo Gaggione*, Bellcore, Morristown, N.J.

10. **A Single Chip 45 Megabit Video Codec**, *James A. Michener*, Grass Valley Group, Grass Valley, Calif.
11. **Adaptive Prediction for High-Quality Television Transmission Coding Based on the LMS Algorithm**, *Michael J. Knee*, British Broadcasting Corp., Surrey, England
12. **DCT Based Television Codec for DS-3 Digital Transmission**, *Silvio Cucchi and Francesco Molo*, Telettra USA, New York, N.Y.
13. **A Modular Video Coding Architecture for Present and Advanced TV Systems**, *Shaker Sabri and Denis Lemay*, Bell-Northern Research, Verdun, Que., Canada; *Eric Dubois*, INRS Telecommunications, Verdun, Que., Canada
14. **DS-3 Video Compression Codec Technology Utilizing Higher Order Differential Pulse Code Modulation**, *Thomas R. Volk*, NEC America, Inc., Herndon, Va.
15. **Objective Measurement Methods of Motion Artifacts for 45 MBit, NTSC, DPCM, Bit-Reduction Video Codecs**, *Howard Meiseles*, Capital Cities/ABC, Inc., New York, N.Y.

TV Post-Production I

16. **The 4:2:2 Standard in Electronic Post-Production**, *Marcos Obadia*, Limelite Video, Inc., Miami, Fla.
17. **Conversion Between Composite and Component Digital Signals**, *T. Fujita, J. Takayama, and P. Dare*, Sony Corp., Teaneck, N.J.
18. **Post-Production Switcher Solutions**, *David G. S. Wood*, Grass Valley Group, Grass Valley, Calif.
19. **Mechanical Considerations for Composite Digital VCR**, *N. Kaku, S. Ozaki, S. Yokoo, T. Ozawa, Y. Niguchi, H. Ono, K. Ogiro, and H. Yokota*, Hitachi, Ltd., Yokohama, Japan
20. **Multi-Generation Performance of a Digital Composite VTR**, *Fraser Morrison*, Ampex Corp., Redwood City, Calif.
21. **The Recordable Laser Videodisc... A New Generation**, *John F. N. Browne*, Optical Disc Corp., Cerritos, Calif.
22. **Post-Production Facilities in the Digital Domain**, *Peter D. Symes*, Grass Valley Group, Grass Valley, Calif.
23. **Integrating D-2 into the Post-Production Environment**, *Michael Fayette*, Post Effects, Chicago, Ill.

Film Production Technology

24. **The Arriflex Adjustable Contrast Filter: The ArriCon**, *Stanislaw Loth and Howard P. Jones*, Arriflex Corp., Blauvelt, N.Y.
25. **Modern Film Edge Number Systems**, *Ronald E. Uhlig, John C. Norris, Karen A. Sutor-Meiler, Fred Fuss, and Tom Powers*, Eastman Kodak Co., Rochester, N.Y.
26. **The Arriflex Contrast Meter: A New Non-subjective Method of Measuring Contrast on the Set**, *Stanislaw Loth and Howard P. Jones*, Arriflex Corp., Blauvelt, N.Y.
27. **"The Brain," A Multi-Axis, Location/Studio Camera/Subject Robotic Motion Control System**, *Michael Azerad, John Pley, Joseph Dabby, and Ed Zwaneveld*, National Film Board of Canada, St. Laurent, Que., Canada
30. **New Fujicolor Negative Film**, *Kozo Noguchi, Yukihide Urata, and Koichi Murai*, Fuji Photo Film Co., Ltd., Kanagawa, Japan
31. **Projection of Images Photographed on Fujicolor Negative Films**, *Kozo Noguchi, Yukihide Urata, and Koichi Murai*, Fuji Photo Film Co., Ltd., Kanagawa, Japan

Advanced TV Transmission Systems I

32. **Advanced Television and the FCC: An Overview**, *Alex D. Felker*, Federal Communications Commission, Washington, D.C.
33. **Signal Processing for Compatible HDTV**, *William E. Glenn and Karen G. Glenn*, New York Institute of Technology, Dania, Fla.
34. **The Use of Genesys Technology for HDTV**, *Richard C. Gerdes*, Production Services, Inc., Tucson, Ariz.
35. **Development of the MUSE Family Systems**, *Y. Tanaka, H. Okuda, K. Enami, T. Takegahara, and T. Nishizawa*, NHK, Tokyo, Japan
36. **An ATV System with NTSC Parameters**, *Yves Faroudja*, Faroudja Laboratories, Inc., Sunnyvale, Calif.
37. **Reliable EDTV/HDTV Transmission in Low-Quality Analog Channels**, *William F. Schreiber and Andrew B. Lippman*, Massachusetts Institute of Technology, Cambridge, Mass.
38. **A Status Report on HD-NTSC™: Compatible HDTV in a Single Chan-**

nel, *Richard J. Iredale*, The Del Rey Group, Marina Del Rey, Calif.
39. **HDTV at 45 MBits**, *Joe Osborne*, Osborne Associates, Inc., Pompano Beach, Fla.

Film Laboratory Technology

40. **An Historic Overview of Bleachbaths and Bleachfixing Baths Used in the Photographic Industry**, *Karel Brems*, Agfa-Gevaert N.V., Mortsel, Belgium
41. **HFC 300D Digital Video Color Film Analyzer, Continuation of a New Generation**, *Harry Teitelbaum*, *Al Arbeeny*, and *Mark Levine*, Hollywood Film Co., Los Angeles, Calif.
42. **Film Analysis Using Digital Imaging Techniques**, *David Williams*, Bremson Data Systems, Lenexa, Kans.
43. **The Film Facit™ 3000H Color Film Analyzer — An Update**, *Stephen J. Willard* and *Julian D. Hopkinson*, LMC Peterson, Inc., Chatsworth, Calif.
44. **A Network for Collection and Dispersal of Timing Data — with Gateways to Lab Control and Accounting Networks**, *Michael V. Chewey*, Bremson Data Systems, Lenexa, Kans.
45. **A New Breed of Motion Picture Printer, the CCP or Computer Controlled Printer**, *Nigel Varian*, Filmlab Systems Int'l. Ltd., High Wycombe, England
46. **Formaldehyde Issues in Motion Picture Processing**, *R. W. Bauer*, *E. A. Kurz*, *R. C. Sehnlin*, *R. M. Gabriele*, *S. J. Powell*, and *J. P. Pytlak*, Eastman Kodak Co., Rochester, N.Y.

Advanced TV Transmission Systems II

47. **An NTSC Compatible High Definition Broadcast System**, *Joshua P. Hill*, Viento Laboratories, Inc., New York, N.Y.
48. **Efficient Use of Bandwidth in "Two Channel" HDTV**, *M. Tsinberg* and *C. A. A. J. Greebe*, Philips Laboratories, Briarcliff Manor, N.Y.
49. **Advanced Compatible Television: A Progress Report**, *Charles B. Dieterich*, *Michael A. Isnardi*, and *Terrence R. Smith*, David Sarnoff Research Center, Princeton, N.J.
50. **NTSC Compatible EDTV System for Satellite and Terrestrial Channels**, *Ron D. Katznelson* and *Edward A. Krause*, General Instrument Corp., San Diego, Calif.

51. **The Eureka 95 Project — The European Approach Towards HDTV**, *P. W. Bogels*, Philips International, Eindhoven, The Netherlands
52. **The FCC ATV Systems Subcommittee**, *Irwin Dorros*, Bellcore, Livingston, N.J.

TV Post-Production II

53. **"Cleopatra," an Interactive Simulation Workstation**, *Michael Azerad* and *Ed Zwaneveld*, National Film Board of Canada, St. Laurent, Que., Canada
54. **D2 Digital Editing Suite**, *Frank Cox*, DSC, Gainesville, Fla.
55. **Effects Editing with Integrated Machine Control**, *Robert L. Lay* and *Charles P. Clarke*, Digital F/X, Inc., Santa Clara, Calif.
56. **A New System of Interactive Sound and Picture Editing**, *Philip Hill*, Solid State Logic, and *Bill Aitken*, Quantel Ltd., Newbury, Berkshire, England
57. **Videotape Editing Using PC-Based Systems Operating over a Local Area Network**, *Brian G. Lay*, WNEV-TV, Boston, Mass.
58. **"Editing with Pictures": From Kerosene to Electricity**, *David Scammell*, Quantel, Inc., Stamford, Conn.
59. **One Year of Daily Digital TV Production**, *Michel Oudin*, Société Française de Production, Paris, France
60. **"Digital Paper" — Flexible, Optical Storage Media for the Motion Picture Industry**, *Steven J. Abbott*, ICI Electronics, Cheshire, England

Film Presentation Technology

61. **Considerations in the Use of Estar and Acetate Motion Picture Films**, *John C. Norris*, *Fred C. Franzwa*, *J. O. Paul*, and *F. J. Kolb, Jr.*, Eastman Kodak Co., Rochester, N.Y.
62. **35mm Release Prints Using Dolby SR on Photographic Sound Tracks — A Progress Report**, *Ioan Allen*, Dolby Laboratories, San Francisco, Calif.
63. **Soviet Motion Picture Industry and Technology**, *A. Chernoyarsky*, NPO "KADR" and NIKFI, Moscow, Soviet Union
64. **Thirty Frames-per-Second — The Impact on Audio Quality with 35mm Photographic Sound-Tracks**, *Ioan Allen*, Dolby Laboratories, San Francisco, Calif.

65. **Edge Coding for Release Prints**, *Ioan Allen* and *Doug Mandell*, Dolby Laboratories, San Francisco, Calif.
66. Repeat of presentation with commentary that was part of paper 31, presented in the Film Production Technology Session on Sunday morning.

Advanced Television Production Systems I

67. **The Impact of HDTV on Production**, *Keith R. Field*, Canadian Broadcasting Corp., Que., Canada
68. **"Littlest Victims," a Report on the First CBS Movie of the Week to Be Produced in High Definition Television**, *William C. Nicholls*, CBS, Inc., New York, N.Y.
69. **High Definition Electronic Production — A Standard to Build On**, *Richard J. Stumpf*, Universal City Studios, Universal City, Calif.
70. **Towards a World Studio Standard for High Definition Television**, *Dominique Nasse*, CCETT, Rennes, France; *Jean Chatel*, Thomson-CSF, Rennes, France
71. **HD-PRO™: A Global High Definition Production Standard**, *Richard J. Iredale*, The Del Rey Group, Marina Del Rey, Calif.
72. **New Production and Broadcasting Standard**, *Bernard Tichit*, Thomson Video Equipement, Cergy St. Christophe, France
73. **HDTV Production Colorimetry**, *LeRoy DeMarsh*, Eastman Kodak Co., Rochester, N.Y.
74. **A Programmable, Multi-Format Source of Picture Signals for Advanced Television System Development**, *Charles Rhodes*, The Advanced Television Test Center, Briarcliff Manor, N.Y., and *Bruce Sidran*, Capital Cities/ABC, Inc., New York, N.Y.

Satellites

75. **Time for Two, A Video TDM System which Maintains Spatial and Temporal Resolution for Two Pictures from Different Uplinks**, *Robert J. Butler*, Leitch Video Int'l. Inc., Syosset, N.Y.
76. **Adjacent Satellite and Ground Station Interference**, *George Hrycenko* and *Stephen P. Dulac*, Hughes Communications, Inc., El Segundo, Calif.
77. **Propagation Phenomena and Terrestrial Interference**, *Reed McClellan Burkhart*, Hughes Communications, Inc., Los Angeles, Calif.

Sound Technology

83. **Some Methods for Minimizing Spectrally Induced Amplitude Modulation Artifacts in Photographic Sound Recording Systems**, *Charles Nairn*, Communications Technology, Inc., Detroit, Mich.
84. **Applications of a Vari-Speed Processor for Film**, *Jon C. Schmidt*, Universal Recording Corp., Chicago, Ill.
85. **Technical Design Considerations of a Reference Quality Screening Room**, *Ioan Allen*, Dolby Laboratories, and *David R. Schwind*, Charles Salter & Associates, San Francisco, Calif.
86. **Report of the Study Group on Digital Sound for Motion Picture Distribution**, *Ronald E. Uhlig*, Eastman Kodak Co., Rochester, N.Y.
87. **A High Capacity Automated Digital Sound Effects Storage and Retrieval System**, *Morris Jaslowitz*, *Terry D'Silva*, and *Ed Zwaneveld*, National Film Board of Canada, Montreal, Que., Canada
88. **The Acoustical Renovation of Disney Pictures' Dubbing Theater**, *David R. Schwind*, C. M. Salter Assoc., Inc., San Francisco, Calif.
89. **Audio Program Metering in the 1980's: The Work of the IEEE Audio Measurements Subcommittee**, *Randall Hoffner*, NBC, Inc., New York, N.Y.
90. **The Caveat Group Recommended Practices on Audio for the Visual Media**, *Thomas E. Miller*, Universal Recording Corp., Chicago, Ill.

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91. **HDTV Digital VTR**, *L. Thorpe*, *T. Yoshinaki*, and *K. Tsujikawa*, Sony, Teaneck, N.J.
92. **An Industrial Application Hi-Vision VTR Using the New 1/2-Inch Video Cassette**, *H. Shibaya*, *K. Yokoyama*, *T. Kido*, *M. Matsumoto*, *I. Obata*, and *R. Tsunoi*, NHK, Tokyo, Japan
93. **HDTV Optical Disc Playback System**, *L. Thorpe*, *H. Takehashi*, *K. Tachibana*, and *H. Momiyama*, Sony, Teaneck, N.J.
94. **Advanced High Definition 50 to 60 Hz Standards Conversion**, *P. Robert*, Thomson-CSF/Laboratories Electroniques de Rennes, France; *M. Lamnabhi* and *J. J. Lhuillier*, Laboratoires d'Electronique et de Physique Appliquée (Philips), Limeil-Brevannes, France

95. **HDTV Downconverter**, *L. Thorpe*, *K. Matsumoto*, and *T. Kubota*, Sony, Teaneck, N.J.
96. **A High Quality Distribution Switcher for HDTV**, *David L. Bytheway*, BTS, Salt Lake City, Utah
97. **Enhanced NTSC: Applications and Impact**, *Christian Tremblay*, Central Dynamics, Montreal, Que., Canada
98. **Motion Control Compositing with HDTV**, *James A. Gaspar*, CBS, Inc., New York, N.Y., and *John Dykstra*, Apogee Productions, Inc., Van Nuys, Calif.

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99. **Considerations in the Design of a Character Generator**, *Roi D. Agneta*, Chyron Corp., Melville, N.Y.
100. **Computer-Driven Results in an On-Air Control System**, *Bob Pank*, Quantel, Ltd., Newbury, Berkshire, England
101. **Real Time 3D Graphics Using the IBM PC/AT**, *Christopher Chaleki* and *Ted Williams*, Amherst Electronic Instruments, Inc., Haydenville, Mass.
102. **The Video Workstation — The Linkage of 2D and 3D Effects**, *Jeffrey Schier*, Pinnacle Systems, Santa Clara, Calif.
103. **The Successful Application of Real-Time Digital Compositing to Anti-Aliased Text and Graphics Generation**, *Dimitri Chernyshov*, *Ginny Faison*, and *Garn Morrell*, Quanta Corp., Salt Lake City, Utah
104. **The DP-422 Digital Video Platform**, *Richard Daly*, Dynatech Colorgraphics, Madison, Wisc.
105. **Digital Video Optical (DVO): The Next Generation of Composing Images with Programmability, Resolution, Independence and Open Architecture**, *R. Greenberg*, *J. Hynek*, *A. Friedman*, and *C. Woods*, R/Greenberg Associates, New York, N.Y.

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106. **Computer Controlled, Optical and Electronic Subtitling of Films**, *Morris Jaslowitz*, *Joseph Dabby*, and *Ed Zwaneveld*, National Film Board of Canada, Montreal, Que., Canada
108. **Time Code on Film — Building Bridges Between Film, Video and Audio**, **Advanced Techniques**, *Moe Shore*, Panavision, Inc., Tarzana, Calif.

109. **3/2 Pull-Down Encoding: A Time Code Method of True Film Frame Identification**, *Stephen Scott*, Skotel Corp., Brossard, Que., Canada
111. **Feature Films and Electronic Editing, An Analysis**, *Milton Forman*, Cinedco, Inc., Los Angeles, Calif.
113. **Electronic Advances in the Creative Art of Editing**, *Herbert H. Dow*, Cinedco, Inc., Glendale, Calif.

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114. **CBS Experience with Broadcast Quality Bit Reduction Codecs**, *Bruce Ross*, CBS, Inc., New York, N.Y.
115. **Transmission of HDTV and Audio Signals over One S.M. Fiber**, *P. S. Natarajan*, *P. S. Venkatesan*, *M. D. Austin*, *J. Orost*, and *C. C. Forbes*, Bellcore, Red Bank, N.J.
116. **How to Achieve Transparent Transmissions of Multiple Videos per Fiber**, *David E. Zimmerman*, Grass Valley Group, Grass Valley, Calif.
117. **A Packet Video/Audio System Using the Asynchronous Transfer Mode Technique**, *H. J. Chao*, *C. A. Johnston*, and *L. S. Smoot*, Bell Communications Research, Inc., Morristown, N.J.
118. **Digital Transmission of a 243 Mbit/s Digital Video Color Signal Via Optical Fibers**, *C. Claverie*, *C. Delattre*, and *J. Oyaux*, Thomson Video Equipment, Cergy St. Christophe, France

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120. **NBC Camera Robotics System**, *Ray Lowe*, NBC, Inc., New York, N.Y.
121. **Real Time Automatic Video Measurements with High Speed and Accuracy**, *R. F. Riley*, Marconi Instruments, Inc., Allendale, N.J.
122. **A Unique System for Controlling Television Equipment Analog Functions**, *Merv Graham*, Graham-Patten Systems, Inc., Grass Valley, Calif.
123. **Library Management Systems — Applications and Implementation**, *Raymond K. Baldock* and *Hajime Tekeuchi*, Sony Corp., Teaneck N.J.
124. **The M.A.R.C. II System: A Modular Multiple Robotic Automatic Record/Play System**, *P. Livingston*, *M. Notani*, *M. Min*, and *M. Mifflin*, Panasonic Broadcast Systems Co., Secaucus, N.J.

125. **The Impact of Cart Machines on Broadcast Automation**, *Tim L. Crabtree and David E. Lewis*, Odetics, Inc., Anaheim, Calif.
126. **Development and Operation of New Systems for Commercial Filing and On-Air**, *M. Kajiyama, K. Sugihara, N. Tetsuo, and F. Karakama*, Tokyo Broadcasting System, Inc., Tokyo, Japan
127. **Workstation Development: A Plan for the Future at NBC**, *Ralph K. Strader*, NBC, Inc., New York, N.Y.

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128. **Noise Implications of Electronic Color Masking in Film/Electronic Hybrid Systems**, *Richard C. Sehlin, Douglas G. Walker, and Glenn L. Kennell*, Eastman Kodak Co., Rochester, N.Y.
129. **A Report on the Interface Between HDTV and Film**, *James A. Mendrala*, Sonex International, San Fernando, Calif.
130. **Montage and Electronic Editing — The Next Generation**, *Chester L. Schuler*, Montage Group, Ltd., New York, N.Y.
131. **Present Status of Laser Telecine and Laser Beam Film Recording**, *Y. Nojiri, H. Hirabayashi, Y. Tanaka, Y. Sugiura, T. Kawai, and T. Motoki*, NHK, Tokyo, Japan
132. **HDTV/Film Transfer Characteristics — A Comparison**, *George Gabritsos, Henry Mahler, and James A. Gaspar*, CBS, Inc., New York, N.Y.
133. **Chroma-key Processing by HDTV Using Film as a Background**, *Takeo Nose*, Toyo Cinema Co., Ltd., Tokyo, Japan
134. **Two-Dimensional Electronic Correction of Image Unsteadiness in Real-Time**, *Dieter Poetsch*, BTS, Darmstadt, W. Germany

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135. **Overview: Report of the Committee**, *Robert Thomas*, Capital Cities/ABC, Inc., New York, N.Y.
136. **The Future Potential of Video Tape Performance**, *Brian Gustard*, Pfizer Pigments Inc., Easton, Pa.
137. **Recording at High Volumetric Packing Densities**, *Irving Wolf and Thomas Neuman*, Ampex Corp., Redwood City, Calif.
138. **Friction — Its Influence in Rotary Recorders**, *Heinrich L. Zahn*, Consultant, Rossdorf, W. Germany

139. **Two Years of M-II — A Progress Report**, *Peter Smith, Frank Davenport, and Steve Mahrer*, NBC, Inc., New York, N.Y.
140. **Betacam SP — The First Year**, *Karl Renwanz*, WNEV-TV, Boston, Mass.
141. **High Picture Quality Technologies for a S-VHS Portable VCR**, *M. Oku, I. Aizawa, N. Azuma, S. Okada, K. Hirose, and M. Ozawa*, Hitachi, Ltd., Yokohama, Japan
142. **Feasibility of a New Broadcast Digital VTR**, *I. Arimura, M. Matsui, C. Yamamitsu, and J. Hamalainen*, Panasonic Broadcast Systems Co., Secaucus, N.J.

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144. **Overview: A Discussion on the Issue of the Number of Bits Required to Adequately Process a Video Signal**, *Bruce Penney*, Tektronix, Beaverton, Oreg.
145. **Bits, Brush Fires and Bailing Wire**, *Peter D. Symes*, Grass Valley Group, Grass Valley, Calif.
146. **Dynamic Rounding: An Update**, *D. Peter Owen*, Quantel, Inc., Stamford, Conn.
147. **Maintaining Full 4:4:4 Resolution Through the Post-Production Process**, *Charles P. Clarke, Michael Ogrinc, and Shane Dickey*, Digital F/X, Inc., Santa Clara, Calif.
148. **An Advanced NTSC Digital Decoder**, *D. M. Creed*, Sony Broadcast, Ltd., Basingstoke Hants, England
149. **Noise Reduction in Video Applications**, *Hans-Peter Richter*, BTS, Darmstadt, W. Germany
151. **Implementation of a Programmable System for Real-Time Digital Video Processing**, *Michel Fortier and Eric Dubois*, INRS-Telecommunications, Verdun, Que., Canada
152. **Digital 4:2:2 Color Correction System**, *Georges Labb and Françoise Semin*, Thomson Video Equipment, Cergy St. Christophe, France

New Technology in Imaging and Display I

153. **Optics Plus Computers: The Giant Leap for Zoom Lenses**, *Bernard Angenieux and Gerard Corbasson*, Angenieux Corp. of America, Miami, Fla.
155. **Standardization of Design Parameters for CCD Camera Lenses**, *Kazunori Ohnishi*, NHK, Tokyo, Japan

156. **2nd Generation: The Development of "Smart" CCD Color Camera**, *K. Nagai, S. Yamamoto, K. Umise, R. Hidaka, R. Yokota, and Y. Taniji*, NEC Corp., Tokyo, Japan
157. **Some Considerations for a CCD Production Camera**, *Engbert Tienkamp*, BTS, Breda, The Netherlands
158. **The KCH 1000 — A Multi-Standard HDTV Camera System**, *Wolfram Klemmer*, BTS, Darmstadt, W. Germany
159. **A High-Definition Television CCD Color Camera**, *I. Akiyama, K. Nagano, H. Nakayima, Y. Ushiyama, and E. Oda*, NEC Corp., Kanagawa, Japan

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160. **An Audio Mixing Console Architecture for Film and Video Post Production**, *Chris David*, Solid State Logic, Inc., Hollywood, Calif.
161. **Audio Performance of Professional VTRs**, *Charles P. Repka*, NBC, Inc., New York, N.Y.
162. **Evolution and Innovation in Stereo Television, 1982-Future**, *Elizabeth A. Cohen*, Charles M. Salter Associates, Inc., San Francisco, Calif.
163. **Television for the Blind — Descriptive Video Services**, *F. Cary Wight*, PBS, Alexandria, Va.
164. **Interconnecting Digital Audio Multi-Channel Equipment**, *James H. Wilkinson*, Sony Broadcast, Ltd., Basingstoke Hants, England
165. **Digital Audio HDTV Using Adaptive Differential Entropy Coding**, *C. S. Weaver and A. B. Conner*, Digideck, Inc., Mountain View, Calif.

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167. **A 2-Million Pixel CCD Image Sensor for HDTV Uses**, *N. Harada, S. Manabe, A. Furakawa, Y. Ide, H. Nozaki, and M. Kimura*, Toshiba Corp., Kawasaki, Japan
168. **Display Colorimetry**, *Paul M. Thomsen*, Conrac Display Products Groups, Duarte, Calif.
169. **The Monitoring of Video Pictures in Different Formats and Standards**, *Joost Verbrugge*, Barco Industries, Kortrijk, Belgium
170. **A Portable Prompter System Equipped with a Liquid Crystal Display**, *Taijiro Seo*, NHK, Tokyo, Japan, and *Takeshi Kuwata*, Asahi Glass Electronic Products R&D Center Co., Ltd., Yokohama-shi, Japan