Section Chairman Richard Bauer welcoming participants.

Ron Uhlig presenting paper on cinema digital sound.

Ed Zwaneveld delivering paper in session on new film technologies.

Saturday morning, May 11 – New Film Technologies

"IMAX Present and Future," Walter Winchell, IMAX

DigiSync Keykode Reader," Frederick Gasoi, National Film Board of Canada

"Cinema Digital Sound," Ron Uhlig, Eastman Kodak Co.

"Digital Film Print Content Sampling to Synchronize Cine-Text™ Electronic Subtitle Projection and External Sound," Ed Zwaneveld, National Film Board of Canada

Saturday Morning, May 11 – Film Preservation

"Some Pros and Cons of Motion Picture Film Preservation," Richard Bauer and Tulsi Ram, Eastman Kodak Co.

"The Restoration and Preservation of the Moving Image," Arnold Schieman, Restoration House

Saturday afternoon, May 11 – High Definition and Advanced Television

"Development of the Digital Representation of 1125/60 HDTV Studio Signal," Hugo Gaggioni, Sony Advanced Systems

"HDTV in the Real World," Glenn Kennel, Eastman Kodak Co.

"Harry – The Bridge Between Film and Video," David Scammell, Quantel

"Film Options for HDTV," Walter Snyder II, Eastman Kodak Co.

"Subjective Tests of Advanced TV Systems," Dr. Paul Hearty, Communications Research, and David Bennett, Canadian Broadcasting Corp.

"HDP Still Imaging High Definition Applications," Barry Minnerly, REBO Research

Sunday Morning, May 12 – Digital Video Technology

"Switching Digits," Stephen Dirksmeier, Sony Corp.

"Advances in Digital Routing," Dr. Leon Stranger, Utah Scientific

"½-in. Composite Digital Format," Bill Sturcke, Panasonic

"The Next Step in D-1 Technology," Bruce Lilley, Sony Corp.

Sunday morning, May 12 – Videotape Preservation

"Metallic Tape Stability in Long-Term Storage," Jim Hegedorn, Fuji

– Ed Howell
Publicity Chairman

Excerpts from "SMPTE – A Vision for the Future"

By Richard K. Schafer

We [the SMPTE] work to eliminate confusion and solve problems for the motion-picture and television industry. We set standards and bring order to technical chaos. That's a simple statement of SMPTE's mission. In fact, we've been at it for three-quarters of a century. I'm sure many of you know, 1991 marks our Society's 75th birthday. It's a good time for us to look back – and forward.

I find three distinct eras in SMPTE's history: the film era, the television era, and. . . well, let me come to that. When the Society of Motion Picture Engineers – the SMPE – was formed in 1916 by C. Francis Jenkins, the movie business was a very young combination of science, art, and business.

SMPTE Financial Vice-President Richard Schafer delivering keynote speech at the mini-conference luncheon.

In fact, artistically speaking, the movies were still being invented in 1916. That was only one year after D. W. Griffith first showed the world the full power and possibility of the medium with his incredible breakthrough work, *The Birth of a Nation.* To this day, film scholars really don't know exactly how long this film ran. That's because, in 1916, there was still no standard for camera speed.

In those days, film equipment, as well as film itself, had not been completely standardized. Yet movies were a worldwide phenomenon. Lack of standards threatened the ability of this young American industry to exploit the import-export business.

The Society of Motion Picture

Excerpts from keynote speech by SMPTE Financial Vice-President Richard Schafer, Eastman Kodak Co., at SMPTE Rochester, Montreal/Quebec, Ottawa, and Toronto Sections Mini-Conference in Rochester, N.Y., on May 11, 1991.

Engineers was born in 1916, and ever since then, we've been clearing away the mess of confusion and incompatibility. We've established standards for cameras, printers, projectors, film dimensions, edge printing, and on and on. Phase "one" of SMPTE's history had begun.

Sound came in the late 1920s. Audio engineering, sound recording and reproduction – and all the equipment and material that goes with it – were a new Society domain – from synching discs for *The Jazz Singer* in 1927 to managing digital sound in 1991.

This was only the beginning. Sound, color, and aspect ratio were major preoccupations of SMPE during its first 40 years. Aspect ratio became especially important during the 1950s. That was the era when Hollywood began producing in 3-D and in a variety of widescreen systems such as CinemaScope, Vista-Vision, and Cinerama.

All of this was part of Hollywood's desperate battle *against* television. The idea was to make the movies bigger, brighter, and louder than anything that could be found on that little black-and-white box in the living room. But, while movie producers were at odds with television, the technical community saw the need to *embrace* the fledgling technology.

Our Society realized it had to bring *television* into its domain. So, in 1950, the "T" was added, and SMPE became SMPTE, the Society of Motion Picture and *Television* Engineers. The Society's *second* era was recognized.

Since then, our organization has dealt with video cameras, monitors, colorimetry, recording formats, and signal encoding. By the way, high-definition television is on the list. Some people think it's SMPTE's current and future hot topic. The fact is, we've been involved with HDTV systems for more than a decade. The Society has won two Emmys for its television work.

But I'm not here to sing the Society's praises or list its triumphs. We look at the past to get ideas for the future. When we examine SMPTE's 75-year history, we find an ever-widening circle of involvement. And this is exactly as it should be.

It's what has made SMPTE a strong and important force through three-quarters of a century of remarkable progress in the imaging science. It's not just the awards we've won, or the work we've done, but it's our openness to appropriate *expansion* of our domain.

The term "motion picture" refers, neither to film, nor video, nor any single technology, but to the entire field of motion imaging. We recognize that all technologies related to motion imaging must be related to each other. And that creates a definite need for technical dialogue followed by standardization. Recently, much of SMPTE's energy has been focused on systems that integrate film and video technologies.

So, if we keep in mind what SMPTE has done during seventy-five years worth of yesterdays, and what it's doing today, then I think our direction for tomorrow becomes unmistakable. The time has come for us to expand our domain once again, to reach out to yet another growing imaging technology. I'm referring, of course, to computer-based imaging systems – a substantial technology area which, without our attention, could be on a collision course with film and video.

Notice I said "substantial technology," not "substitute technology." Long ago, we abandoned the concept of replacement for the notion of co-existence. We are now about to change our focus from co-existence to convergence. With our Society's attention, the inevitable convergence of images from film and video *and* the computer can be managed to the benefit of our customers – hopefully without bloodshed!

What makes this convergence possible, I can hold between my fingers. It's so small, you can't even see it, yet so powerful it will facilitate a revolutionary integration of technologies for our industry. It is the *digital bit.* Now I can't tell if this one's a "one" or a "zero," but, teamed up with billions of others, it constitutes a profound force. The digital bit is the common denominator to which almost every form of information can be reduced. And when reduced to digital bits, we can use computers to integrate information and thus integrate technologies.

Our information is visual. It's an *image.* A single image, whether film or video or from a graphic workstation, contains an *enormous* amount of information. And motion demands many images per second.

Evolving computer technology is managing the job. We know, for example, how important computer graphics has become to production and post-production for television programs and commercials – even theatrical films. The key to these applications is often the ability to digitize original film or video pictures. For our industry, this must be achieved without quality compromise, and with information *integrity* that allows repeated computer manipulations.

Today, there are some important differences in approach between SMPTE's traditional constituency and those computer folks. Computer people talk about systems with "open architecture" and the flexibility to move information between different systems. We talk about standardization and dream of reducing things to a single universally accepted system.

They talk about square pixels; ours must be rectangular. They see the computer monitor as the natural home for all images; we talk about television in the home, and film in the theater.

Who's right? We all are! We're all in this imaging game together. We need to *manage* the convergence. But that's the trick SMPTE's been pulling off all these years; that's what standardization is all about.

SMPTE provides the forum through which technical consensus can be reached. And it provides the infrastructure for documenting and distributing that consensus.

The computer world can benefit from this kind of forum and infrastructure. So we can – and must – get that dialogue going.

And, in fact, SMPTE is doing just that. The theme of October's conference, in Los Angeles, is "Advanced Motion Imaging – Enhancing the Universal Language." The program and workshops will support the theme and include the exciting world of computer graphics! Next year, the Winter Conference will specifically focus on computer imaging technology.

What's the point? Left separate, computer and motion-imaging people, are on a collision course that only *begins* with the issue of the shape of the pixel. We must get to know and understand *each other,* our *technologies,* and our *customer's needs.*

SMPTE is committed to drawing a circle that "takes them in." At year 75, we embark on era number "three" of our distinguished tradition.