



Progress Committee Report for 1976

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Introduction The year 1976 showed continuous progress in both the financial and technical areas of the motion-picture and television industries. This Progress Report will attempt to inform its readers of the general progress made in the Society's areas of interest in the fields of motion pictures, television, education, photoscience and photoinstrumentation, with the underlying objective of projecting the effect technology and equipment developed in 1976 will have with respect to these disciplines during the coming year and in the years to come.

The Past Chairman of the Progress Report for 1974/1975, William D. Hedden, made recommendations to the Executive Committee and the Board of Governors concerning future Progress Reports and many of these recommendations were adopted in preparation of this report.

Basically, it was the opinion of the Board that the Progress Report serves a useful

Submitted by Robert M. Smith, Progress Committee Chairman, c/o Du Art Film Laboratories, Inc., 245 W. 55 St., New York, NY 10019. The Committee makes an annual report. This report covers the calendar year 1976.

purpose and is a widely used reference in reporting technical advancements in a given year. It was also recognized that the particular comments made by the Affairs Vice-Presidents in their review of what they saw as yearly progress were of great importance and most referred to by readers. It was the consensus of the Executive Committee that this part of the report should be expanded by each of the Affairs Vice-Presidents.

This year each of the Affairs Vice-Presidents has assumed greater responsibility in preparing this report and the responsibility of screening and commenting on material mentioned in his report was assumed directly by each Affairs Vice-President. It is your Chairman's hope that this new approach will help make the yearly Progress Report more meaningful to its readers.

During 1976 the Society has seen great progress in its own sphere and in that year the Society celebrated its 60th Anniversary. In 1916 ten engineers, under the guidance of C. Francis Jenkins, held, in Washington, D.C., the first meeting of the

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Society of Motion Picture Engineers. In 1950 recognizing the growing importance of television and its close relationship to the art and science of motion pictures, the SMPE was renamed the Society of Motion Picture and Television Engineers.

In the 60 years since its inception, the Society has grown to over 7500 members serving not only the motion-picture industry but photoscience, photoinstrumentation and education as well as the ever-expanding television field.

In 1976 the Society held its 10th Annual Television Winter Conference in Detroit, Michigan. This conference has grown from a small regional meeting into a major technical conference important to the entire television industry. The 10th Television Winter Conference dealt exclusively with Electronic Newsgathering (ENG). The technical papers presented at this Conference were collected and published by the Society in a very successful publication that has been widely accepted by the television industry. It is easy to forecast the future of the Society's growth in the television area.

During 1976 the Society has taken part in other engineering and technical conferences in the United States, Canada and overseas. Cooperation with other professional groups in the United States included participation in the convention of the National Association of Broadcasters where the Society sponsored a workshop.

The Society's international activities in 1976 included the 12th International Congress on High-speed Photography held in Toronto, Canada. Among other international activities, a delegation from the Society attended the UNIATEC Conference held in Moscow. The Society was also represented at the meeting of the ISO Technical Secretaries in Geneva; at the Photokina in Cologne; and at the Interna-

tional Broadcasting Convention in London. Attendance at these conferences included both national officers of the Society and members of the staff.

The Society now has members throughout the world, from Australia to Zambia, with some 60 foreign countries listed in between, in the *SMPTE Directory for Members*. Involvement with international affairs relating to motion-picture and television engineering and close cooperation with other professional groups throughout the world augurs well for the future of the Society and its members.

The interests of the Society have been greatly expanded since 1916. In the exploration of space, in the recording of scientific data and in advances in almost every area of human endeavor, the science and technology of motion pictures and television have played a vital role.

In March of 1976 Scientific and Technical Academy Awards were presented by the Academy of Motion Picture Arts and Sciences. Of the nine companies receiving awards, we were pleased to note that five of the recipients are Sustaining Members of the Society, and of ten individuals receiving Academy Citation Awards, three are SMPTE members.

While television in 1976 showed significant growth and is one of the major interests of the Society, the motion-picture industry also had a substantial growth in many areas of its disciplines. Although in 1976 the motion-picture industry found attendance and box office receipts slightly down compared to 1975, gross box office

receipts for 1976 were still over \$2 billion, second only to 1975.

There was a slight increase (2%) in the number of motion-picture theater screenings in 1976. Part of the increase was due to the multiple theater concept with larger theaters divided into two or more smaller ones. This increase in the number of theater screenings resulted in an increase in the average number of 35mm theatrical release prints ordered for a given film.

In the area of legislation, however, Hollywood did not fare so well. Money invested by United States companies formed to produce films can no longer be sheltered from taxation as the result of a recent change in tax laws approved by Congress. As a consequence fewer films are being made in the United States and more in foreign countries.

Use of motion-picture film for movies produced for television continued to increase. Not only has the number of films for television increased but the length of the movies has increased. Movies are now made to fill a two-hour time slot instead of the previous hour and a half.

Special thanks are hereby extended to William D. Hedden, Past Chairman of the 1975/1976 Progress Report for the benefit of his advice and cooperation and to the members of the Progress Committee who have contributed their efforts, and especially to each of the Affairs Vice-Presidents who have assumed additional responsibility in their office, in the preparation of this report. — *Robert M. Smith*, Chairman, Progress Committee

TELEVISION

This section of the Progress Report discusses in depth the progress made in television broadcast and production equipment as well as advanced developments and production techniques that seem to have reached the point of effective operational services and/or have demonstrated new and improved performance over that of prior equipment. Important trends in the technology of television are set forth. Some developments now underway are described provided, although they may not reach fruition for some time, they appear to offer significant advances in technique. Future growth possibilities for the television industry as a whole are assessed.

The year 1976 brought forth both advances and refinements to existing technologies and developments, among them, digital signal processing; satellite operation; circular polarization antenna; magnetic recording; automatic television transmission stations; and reflective videodisc players. New developments included the use of fiber optics for solving television cable problems and a compact audio/video storage and transmission system.

Technological Advances

Digital Signal Processing

The application of digital television techniques to many types of signal processing led to stepped-up development of new equipment of importance to the broadcaster. A new Digital Special Effects System gives the illusion of a third dimension through the use of digital processing which allows apparent "rotation" of the picture signal around its vertical axis. Digital Time-Base Correctors can now interface with most videotape recorders and will be incorporated in the next generation of videotape recorders. A paper by Lowry¹ discusses the advancement that digital techniques are bringing to the technical areas of optical effects, tape editing and duplicating, stressing the high reliability in the exact duplication of many generations of videotapes.

Circular Polarized Antennas

Equipment that transmits television signals in a spiraling elliptical pattern, rather than the horizontally polarized

transmission now employed, was made available. This new development improved picture reception and minimized ghosting effects while lessening the likelihood of co-channel interference.

Fast-Charge Batteries for ENG

A battery charger that "burps" and a battery that won't give up became available for ENG video camera and recorder equipment operation. The burp charging method gets rid of accumulated gases across the plate area when it is being "fed" a charge. By using the burp principle of charging sealed cylindrical nickel-cadmium (ni-cad) batteries, it is possible to use large charging currents to the end of the charge. This results in a full charge in 15 to 20 min, compared to conventional charging times of up to 16 h.

Improvements in Magnetic Recording

Technological advances that have been and are being made on all fronts in the magnetic recording field were described by Mallinson.² These on-going advances involve magnetic recording heads; magnetic