



**A High-Speed Television System for Motion Analysis**

*J. A. Bixby*

A high-speed television camera and recorder system records images up to 2000 full frames/sec, or 12,000 partial frames/sec. The system employs a unique parallel recording format and solid state image sensor to record information at a maximum rate of 100 million pixels/sec. The data is recorded using a high-density head-tape combination which achieves an equivalent recording density of 5 million bits/in.<sup>2</sup> of tape, providing the required recording bandwidth of 265 MHz at a tape velocity of 200-in./sec. The system was designed for motion analysis applications, and includes a digital frame store for time-base correction and still-frame/slow-motion replay. Single frames may be accessed and held on command, stepping forward or backward.



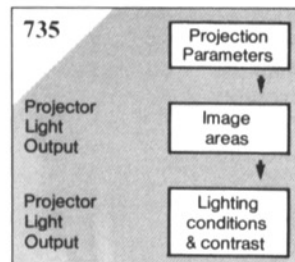
719

**Compatible Systems for High-Quality Television**

*R. N. Jackson and M. J. J. C. Annegarn*

The feasibility of introducing a picture memory into domestic receivers at

an acceptable cost opens new ways to approach the improvement of television picture quality. Until very recently, straightforward improvement of the picture memory opens up at least two alternative approaches (described in outline in a previous paper by Jackson and Tan). First, if normal transmission were left unchanged, a combination of memory plus picture processing could achieve a greatly improved picture. With the alternative starting point of a large-screen picture of very high quality, processing could retain as much compatibility as possible. This article gives more detail about work already done along both these lines and also suggests some new possibilities.



735

**Audiovisual Environments and Equipment Standards for Education**

*A. J. Powell*

Using the proposed Engineering Committee Recommendations ECR 3, Standards for Conference Facilities, as a starting point, the paper traces the design relationships between the architectural and projection parameters of learning spaces for front projection within the topic of audiovisual environments. The two sets of parameters are combined to illustrate professional techniques used in reaching optimum image dimensions for learning spaces. The effects on the projection equipment performance are shown. The design process is reviewed as involving the necessary applications of three distinct standards. Further research into the subject is proposed, to develop a media facilities specification standard for the construction industry.



724

**Innovations in ENG Recording Equipment**

*T. Mehrens*

A review of the design considerations of a 1/2-in. cassette-based Y/R-Y/B-Y component recording system for broadcast applications. The subject of physical characteristics (size, weight, etc.) is related to electro/mechanical design requirements such as writing speed, drum diameter, loading mechanism, power requirements, tape carrier, etc. Electrical characteristics are presented in terms that relate to: the basic recording format, a time compression/division multiplex encoding technique for the color component signals, and the adaptability of equipment presently in use to a component system. The application of CCD technology to the encoding and decoding of component signals to improve recording density and chrominance component isolation is discussed.



739

**Researching and Restoring Pioneer Talking Pictures**

*A. Shifrin*

This article attempts to clarify some of the obscure beginnings of sound motion pictures, utilizing new information recently uncovered about Edison's work in this medium. Two technical perspectives are pursued. One describes Kinetophone, and the other explains the use of modern audio, film, and video technologies to generate picture and sound with qualities much better than are presumed possible for productions of this vintage.