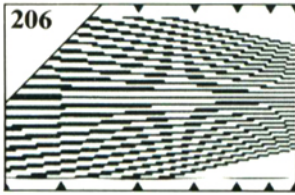


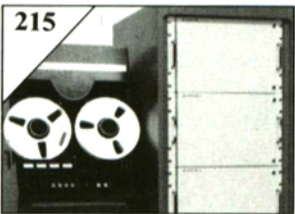
# Highlights



## The Kell Factor: Past and Present

S. C. Hsu

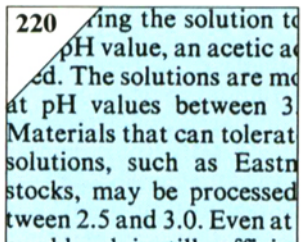
Kell Factor is commonly used to quantify the loss of vertical resolution in a line-scan imaging system due to artifacts of sampling. The Kell factor is not a fundamental constant, as the term implies, however, since its meaning is open to interpretation and its value depends on the specific television system in question. This article explains the concept of Kell factor and its limitations by examining the sources of Kell factor variation, the theoretical and experimental attempts (dating from the 1930s) to determine its numerical value, interlaced scanning systems, and the applications of Kell factor to high-definition television (HDTV) and beyond.



## An Experimental Digital VTR for HDTV

Y. Eto, M. Umemoto,  
S. Mita, and S. Nagahara

HDTV videotape recorders have been demonstrated, but until now all of them have employed analog techniques, with resulting signal-to-noise ratio (SNR) problems in the playback video signal. Digital techniques are known to improve the SNR, but it has been difficult to apply conventional digital recording techniques with HDTV VTRs because of the bit rate required. This article describes an experimental digital HDTV VTR that employs improved channel-coding and error-protection methods.



## Persulfate/Quinone Bleach — Environmental and Economic Aspects

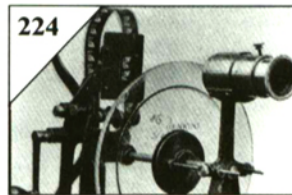
J. A. Keiler and  
G. Pollakowski

There is an increasing sense of responsibility for leaving our children and grandchildren an inhabitable earth. In many countries, the law strictly limits the amounts of chemical pollutants that may be discharged into the environment. Reason dictates that eventually some well-established technologies must be modified to reflect new realities. This often presents technical and economic challenges, but compromises must be made.

Motion-picture laboratories can be classified as chemical industries, which discharge large, though diluted, quantities of substances that are poisonous to

man and nature. The cost to treat the overflow of various chemical solutions before disposal is high. While the concentration of pollutants is so low that economical removal is not feasible, the amount is unacceptably high for discharge without treatment.<sup>1</sup> Methods are being explored to replace these compounds with less toxic or nontoxic chemicals.

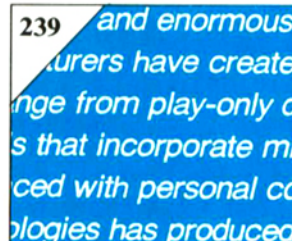
Substantial batch and production trials run in various laboratories conclude that persulfate/quinone bleach is especially attractive from an environmental as well as a chemical cost perspective. These bleaches are suitable for all known color film stocks, including negative, positive, and reversal materials and photographic paper.



## Pioneers of Television: Charles Francis Jenkins

A. Abramson

This paper is a history of the contributions made to the new art and science of television by Charles Francis Jenkins. It is intended to prove that Jenkins made many advances to the early art of television for which he has not been given proper credit. Jenkins was the only man in history who was present at the birth of both the motion picture and television. Together with Thomas Armat, he devised and built the first practical motion-picture projector in 1895. Early in 1922, he started experiments in facsimile (phototelegraphy), and the following year he gave the first "witnessed" demonstration of a working television system. He continued to perfect his system, and finally acquired some 85 patents in the television field. Jenkins was the founder and first president of the Society of Motion Picture Engineers (SMPE), now the Society of Motion Picture and Television Engineers (SMPTE).



## Bibliography: New Technology in Video and Related Fields

M. M. Mirabito and  
B. L. Morgenstern

This bibliography was compiled during the course of research undertaken by the authors. It lists sources of interest to television engineers. Areas covered are: digital technology, image processing, machine vision and microcomputer image acquisition systems, new technologies in video equipment, optical communication, satellite technology, high-speed videography and holography, teleconferencing, teletext, videodisc systems, and videotex.