

## ABSTRACTS OF PAPERS FROM OTHER JOURNALS

### HOLOGRAMS

**Three-dimensional image reconstruction from longwave holograms: a feasibility study**, N. H. Farhat and A. K. Chua, *Opt. Eng.* 14: 200-205, May/June 1975.

This paper concerns itself with the investigation of a method for solving the longstanding problem of longitudinal image distortion encountered in longwave (microwave or acoustic) holography that has so far prevented the exploitation of the three-dimensional imaging capability of holography. A scheme for real-time, distortionless image reconstruction from longwave holograms that has the potential of yielding three-dimensional images which can be viewed with the unaided eye is described. The scheme is based on combining the operations of a semiconductor spatial microwave modulator with that of a plasma chamber in which visualization is due to light emission caused by microwave-induced enhanced ionization and luminosity in a weakly ionized RF plasma. The scheme has the potential advantage of being implementable in real time when a light value is added. Relatively reasonable level millimeter microwave

reconstruction power of 0.6-W average is shown to be sufficient for the reconstruction of a three-dimensional image consisting of 1000 resolvable points using commercially available millimeter wave sources, assuming that the local enhanced luminosity is caused by a doubling of the ionization rate in a low frequency RF discharge plasma.

**Use of the multiple cavity laser holographic system for EBW analysis**, M. J. Landry and A. E. McCarthy, *Opt. Eng.*, 14: 69-72, Jan./Feb. 1975.

A four-pulse multiple cavity laser (MCL) system was developed for use in recording time sequential holograms of fast events. It was used to record four double exposed holograms of an exploding bridge wire (EBW) on a single 10E75 plate with between 2 and 5  $\mu$ s framing time. The holograms were written and processed to an optical density of 2.0. The complex change in index of refraction of the plasma created is visible in the fringe structure of the reconstructed image. The shock front was measured to propagate at an average speed of between 0.13 and 0.14 cm/ $\mu$ s. Main advantages of the MCL holographic

system are: (1) low cost, (2) greater energy/time interval, and (3) electronic control of the time interval between frames.

### LIGHTING

**Metal halide lighting**, D. W. Samuelson, *BKSTS Jour.* 57: 49-51, Feb. 1975.

Metal halide lamps are enclosed arc light sources which produce an enormous amount of light for the electric current they consume. A typical MH lamp will emit 90 lm of daylight balanced light per watt of electricity. By comparison, a blue filtered conventional tungsten filament lamp produces only about 14 lm per W.

For 3200 K (313 Mireds) operation the MH lamp must be filtered and the tungsten lamp remains clear. The respective outputs are then 60 and 28 lm per W.

Hitherto MH lighting has been mostly used for illuminating sports stadia and floodlighting buildings where the lighting level may be increased at least threefold without the need for increased wiring capacity or power consumption. In Europe they have been used extensively for lighting for TV coverage and are gaining wide acceptance by film cameramen especially where large areas must be illuminated.

**Current definitions of reflectance**, Domina Eberle Spencer and Eugene A. Gaston, *J. Opt. Soc. Amer.*, 65: 1129-1132, Oct. 1975.

Eight definitions of reflectance are compared with experimental results presented in an earlier paper. Two types of reflection, diffuse and specular, usually take place simultaneously at all incidence and viewing angles. Only one of the eight definitions studied, the equation of Spencer and Gray, agrees entirely with experiment. Half of the definitions apply only for purely diffuse reflection (i.e. reflection devoid of any specular component). Apparently, many illuminating engineers treat all reflecting surfaces as though they were purely diffuse. We also show that some of the definitions that do not agree with experiment are nevertheless valid for the extreme cases of purely diffuse and purely specular reflection. Definitions that apply to these special cases do not necessarily apply in general.

### OPTICS

**Fiber optic communications: a survey**, C. P. Sandbank, *Electr. Commun.* 50: 20-27, Jan. 1975.

Fiber optic cables offer an exciting prospect for the communications engineer. The art has now reached a stage when commercial exploitation is assured. Though bandwidths of several GHz are possible, at more modest bandwidths the lower attenuation compared with copper transmission makes fiber optic systems commercially attractive.

**Limit of the moth's eye principle and other impedance-matching corrugations for solar-absorber design**, B. S. Thornton, *J. Opt. Soc. Am.*, 65: 267-270, Mar. 1975.

The moth's eye principle of optical-impedance matching by means of an array of tapered protuberances has been studied to determine the limit obtainable for reflection reduction. Analogous multilayer equivalents were optimized over a wide band, using a recently developed optimization method, in

PROBABLY YOUR BEST SOURCE  
for small

# high precision machine parts

**Your Best Source** — Not for every part you use perhaps, but for those *critical parts* and assemblies where so much depends on the proper functioning of a few key parts — this is the source of supply.

*LaVeZZi* machine works, inc.

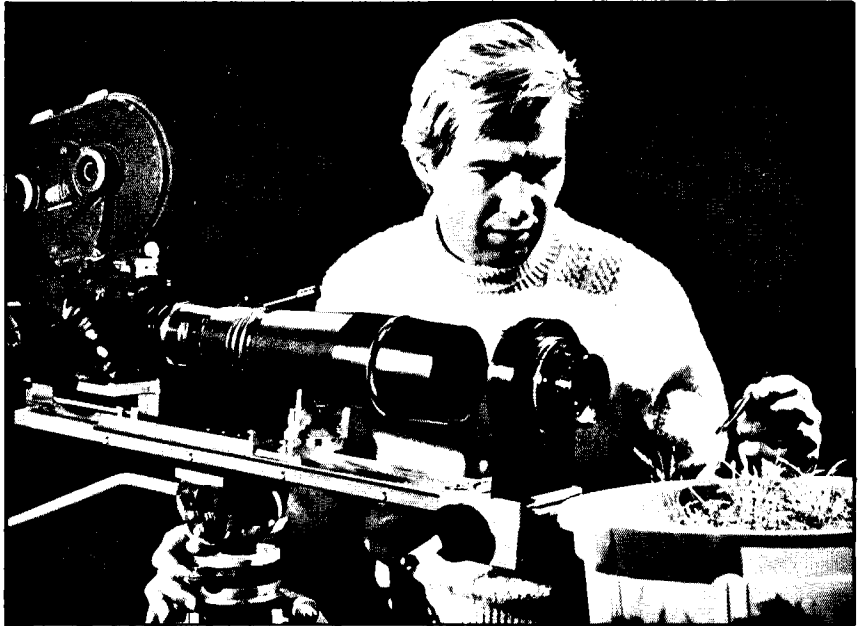
900 N. Larch Ave. • Elmhurst, Ill. 60126 • (312) 832-8990



Send for our  
Brochure AB-65  
and/or send us your  
specs for quote.



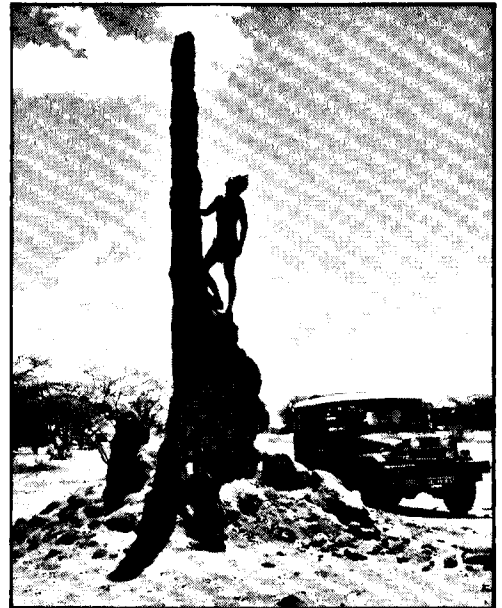
On location for National Geographic in the raw Wyoming winter.



In the lab, ultra-macro cinematography of baby spiders for Time-Life TV series.



Filming the family life of elephants in Africa's Tsavo National Park.



In the African desert near Lake Rudolf to film termite pillars.

**“In the wildlife film production business I go from one extreme to the other...and always with an Arri.”** Wolfgang Bayer—  
 Los Angeles, California • Nairobi, Kenya • Jackson Hole, Wyoming

Wolfgang Bayer, a top wildlife filmmaker, has run hundreds of thousands of feet of film through his Arriflex 16BL — most of it in remote and inaccessible locations. He depends on Arri to deliver sharp, steady footage under the most adverse conditions. “A camera breakdown would be disastrous. I don’t get retakes and repairs could take weeks.”

Wolfgang Bayer can’t take chances. Thousands of miles from the nearest repair facility, filming elephants or termites, in snowstorms or scorching desert sun, his reliable, silent Arri 16BL keeps on rolling.

Even if you don’t go to extremes like Wolfgang Bayer, on location or on the soundstage, Arri “brings ‘em home”. Shoot like it’s now or never... depend on Arriflex.

**ARRI**

ARRIFLEX COMPANY OF AMERICA

P.O. Box 1060, Woodside, N. Y. 11377 / 1011 Chestnut St., Burbank, Ca. 91502

# WESTERN Cine

## FULL IMMERSION WET GATE PRINTING

16mm to 16mm  
16mm to 35mm  
Super 16mm to 35mm



### EASTMAN COLOR INTER-NEGATIVE and POSITIVE

16mm & 35mm

### 16mm PROCESSING ECO, EF and CRI

- Video Analyzing
- Sound Recording and Mixing
- Optical Printing
- Titling
- Super 8mm Reduction Printing
- Filmstrip

*We are a quality-oriented lab...  
Computerized printing...  
Contact our producers' service  
specialists...  
We do the job right!*



DENVER  
312 So. Pearl St. - Denver, Colo. 80209  
Cine Craft  
8764 Beverly Blvd. - Hollywood, Calif. 90048

which one or more of the layers are specified inclusions. A limit of 30 dB reduction of reflectance was obtained over a bandwidth 1.4 times the short-wave-length limit of the band. The results are also related to corrugated conducting surfaces used in a new solar-absorber design that uses corrugations in a conductor and is required to be optimized for best absorption and emissivity values.

**Cinematography of solar intensity, velocity, and magnetic fields,** Jacques M. Beckers, Larry Dickson and Donald Woodman, *Opt. Eng.*, 14: 64-68, Jan./Feb. 1975.

Using a very narrow band (0.004-0.013 nm) Universal Birefringent Filter, rapidly tunable between 410 and 700 nm, and the vacuum telescope at the observatory, we have developed photographic and video techniques to observe solar magnetic and velocity fields utilizing the Zeeman and Doppler effects respectively. This is in addition to direct filtergrams which can also be obtained at any wavelength in this wavelength region. The video technique permits virtual real time display. Both techniques are used for time lapse cinematography of solar activity.

**Simple tests for projection lenses,** D. Thackeray and M. Wickes, *Jour. Phot. Sci.*, 22: 306-308, 1974.

The construction of some simple test slides, and their use in the visual assessment of the aberrations of projection lenses, is described here. The kinds of aberration, and their magnitudes, if significant in the visual image, can be determined readily.

#### SATELLITE TECHNOLOGY

**Classification of physiography from ERTS (Earth Resources Technology Satellite) imagery,** Fawwaz T. Ulaby and James McNaughton, *Photogramm. Eng. and Remote Sensing*, 41: 1019-1027, Aug. 1975.

The potential application of optical data processing to ERTS imagery as a means for automatic identification of large-scale ground patterns was investigated. Spatial frequency distribution and orientational information were derived from ERTS-1 imagery of Kansas for each of 80 sample areas, each 37 km in diameter. The application of classification algorithms to this data reveals that a high degree of correlation exists between the physiography of a sample area and its frequency information. Specifically, the band of frequencies between 1.1 and 2.8 cycles/km appear to contain most of the information needed in distinguishing different physiographic regions.

**Communications satellites — around the world in 800 milliseconds,** D. R. Ellis, *RCA Eng.* 20: 33-37, Oct./Nov. 1974.

Several generations of satellites capable of providing communications to all parts of the world have been launched in the past nine years. A global commercial satellite system has been developed by the International Telecommunications Satellite Organization (Intelsat), a multi-nation organization which owns and operates satellites circling the earth in geostationary orbit above the Atlantic, Pacific, and Indian Oceans. Intelsat satellites are launched by NASA from Cape Canaveral and are monitored and controlled at tracking stations around the world. Earth stations in every major country provide the link between the satellites and the communications network on

the ground. RCA Global Communications, Inc. is an international communications common carrier which operates almost 300 satellite voice and television circuits for the provision of its global services. Technological advances in the satellite communications field have made possible greatly increased capability, speed, and efficiency in communicating around the world by satellite.

#### SOUND

**Electronic reverberation equipment in the Stockholm Concert Hall,** Stellan Dahlstedt, *J. Audio Eng. Soc.* 22: 627-631, Oct. 1974.

During the restoration of the large 2000-seat hall of the Stockholm Concert House, it was decided to install a multichannel electronic reverberation-amplification system in order to increase the sound reverberation time and thus make the hall better suited to classical music. Fundamental to the work was the proper placement of 55 dynamic microphones (Holmco 812-KT-1's) and 104 loudspeakers (Philips 9710-M's) for best effect and avoidance of acoustic feedback. The goal was to increase the reverberation time from about 1.6 s to about 2 s at mid-frequencies with the hall half filled. The system has not yet been finally adjusted, but it has been found that reverberation times can be more than doubled. Listening tests showed that the musicians would notice nothing unusual, but that the effect would be apparent to the listener in the hall and still more so to the engineer in the recording booth.

**Reducing distortion in analog tape recorders,** David Griesinger, *J. Audio Eng. Soc.* 23: 107-112, March 1975.

A predistortion system is described which reduces the harmonic and intermodulation distortion of an analog tape recorder by a factor of 10. The system consists of an inexpensive analog computer coupled to a recording head which uses cross-field bias. The system is both accurate and easy to adjust. The cross-field bias, by narrowing the width of the critical region, ensures that low distortion is maintained through the entire audio band. Since the correction is applied to the recorded flux, tapes can be played with low distortion on any machine.

The system has been tested extensively by recording live classical music, and no audible artifacts have been found. Tapes made with the system are clearer and easier to listen to than tapes made on conventional machines.

**In situ measurement and equalization of sound reproduction systems,** Robert B. Schulein, *J. Audio Eng. Soc.* 23: 178-186, Apr. 1975.

The concept of frequency response is of basic importance to audio reproduction equipment. When analyzing electronic equipment, this characteristic is seldom a problem of measurement or interpretation. It is a problem, however, for acoustical transducers such as loudspeakers. Unlike electronic equipment which has both electrical input and output terminals, the loudspeaker has an electrical input terminal but an acoustical output. This acoustical output is further complicated by the fact that a room is always interposed between the loudspeaker and the acoustical measuring device. With the human as the ultimate evaluation instrument, various measurement and interpretation questions arise regarding frequency response, variations among



**AGFA-GEVAERT**

# The Winner of Every Event at the 1976 Winter Olympics : Gevachrome II by Agfa -Gevaert

Film and television news teams need reliable film material, with extreme sharpness, outstanding brilliance and accurate color rendering. Plus fast, trouble-free processing. Gevachrome II film will be used exclusively by Austrian Television and all accredited TV film teams

for the 1976 Winter Olympics at Innsbruck. Which means that millions of viewers, all over the world, will see the winners recorded on the winning film: Gevachrome II, proud product of Agfa-Gevaert, the world-wide partner of leading film and television professionals.

Agfa-Gevaert N.V.,  
B-2510 Mortsel (Belgium)

CI 7 V

In the U.S.A.: Agfa-Gevaert Inc.  
275 North Street, Teterboro (N.J.)

In Canada: Photo Importing Agencies Ltd.  
29 Gurney Crescent, Toronto, Ontario



listeners, and effect of program material. The major question, however, is just what the frequency response of a particular sound reproduction system should be.

In order to answer these questions, several psychoacoustical experiments were devised, based upon a listener's ability to detect differences. These experiments and their results are described in detail as they relate to the following types of sound reproduction systems: (1) sound reinforcement systems, (2) studio monitoring systems, (3) home high-fidelity systems.

**A self-contained instrument for sound-system equalization**, G. R. Thurmond, *J. Audio Eng. Soc.* 22: 695-699, Nov. 1974.

A new low-cost device provides a means for measurement and correction of most sound-system parameters. Loudspeaker aiming and balancing, system third-octave response measurement and correction, and feedback suppression can all be accomplished quickly and easily with this device alone.

**A complementary source follower circuit for condenser microphone preamplifier**, T. Ken Matsudaira and Osamu Kōno, *J. Audio Eng. Soc.*, 23: 530-535, Sept. 1975.

Junction-gate field effect transistors have been used for preamplifier circuits of condenser microphones. In these circuits, however, field effect transistors are merely replacements of vacuum tubes, and the merits of their being semiconductor devices have not been utilized, except in that the circuit is

miniaturized. A unique feature characterizing semiconductor devices is the existence of the complementary pair. By using a complementary source follower circuit, a high quality preamplifier for condenser microphones is realized. The principle and characteristics of the circuit, and its experimental data, are explained.

**A program-controlled noise filter**, Robert Orban, *J. Audio Eng. Soc.*, 22: 2-9, Jan./Feb. 1974.

Fundamental limitations of program-controlled noise filters are examined as well as psychoacoustical design criteria. A new noise filter which is essentially a program-controlled graphic equalizer is described. Control is based on the energy in the various frequency bands and on statistical analysis of the input signal. Emphasis is placed on the mathematical design of the bandpass filters.

**Dropout identification and cleaning methods for magnetic tape**, D. E. Comstock, R. D. Misner, E. A. Roberts and R. E. Zenner, *J. Audio Eng. Soc.*, 22: 511-520, Sept. 1974.

Many of the specific factors and causes found to be responsible for signal dropouts occurring on instrumentation magnetic tape are described. Dropout-producing substances are identified through optical and microchemical techniques; these findings are correlated with measured electrical signal losses to provide source identification of foreign substances present. Instrumentation used to evaluate tape condition and provide real-time monitoring in

the field is also described. Effective procedures are outlined for achieving significant improvement in tape life and reducing overall operating costs for the magnetic recording systems which utilize these tapes.

**Noise limitations in digital recording**, J. C. Mallinson, *Radio Electron. Eng.*, 44: 216-217, Apr. 1974.

Previous studies have shown that the tape-limited SNR which may be deduced from first principles is in close agreement with practice on many modern videotape recorders. This SNR depends upon the medium properties and the recording format, in particular the trackwidth and bandwidth. Since the digital linear density usable is related to the bandwidth, it is possible to derive expressions linking the SNR, trackwidth, and linear and area digital densities. It may be concluded that operation at area digital densities of approximately  $10^7$  bits/in<sup>2</sup> on current high-quality media is just feasible. This conclusion will be of immediate interest to those concerned with the development of digital video recorders. It is generally acknowledged that transmission of broadcast quality video signals in digital form requires a data rate of about  $10^8$  bits/s. At the  $7\frac{1}{2}$ -in/s rate, the most widely used broadcast quality analog VTR uses approximately  $10$  in<sup>2</sup> of medium per second for the video signal. It becomes clear, therefore, that while it is just feasible to make the digital VTR which uses an equal area of tape, the possibility of operable designs using less tape is remote. The eventual adoption of digital techniques in video recording must depend, therefore, upon considerations other than tape usage.

## IF RECORDERS COULD BE BETTER NAGRA WOULD MAKE THEM BETTER



4.2L SYNCHRONOUS 1/4" TAPE RECORDER

# NAGRA RECORDERS

THE NAGRA 4.2 L IS THE STANDARD OF  
EXCELLENCE IN EVERY NATION IN THE WORLD  
internal modules for every type microphone — crystal sync  
generating — self resolving — camera speed indicating  
and automatic level controlling



United States Distribution — Service — Sales  
**NAGRA MAGNETIC RECORDERS, INC.**  
19 WEST 44th STREET, ROOM 715 • NEW YORK, NEW YORK 10036 • (212) 661-8066

Southern California Sales and Service RYDER MAGNETIC SALES CORP. 1147 North Vine St., Hollywood, California 90038 (213) 469-4391  
Available in Canada BRAUN ELECTRIC CANADA, LTD.

### TELEVISION AND VIDEOTAPE

**Duplication of pre-recorded videotape**, Gordon White, *BKSTS J.* 57: 92-97, Apr. 1975.

Until quite recently, there had not been a great demand for the duplication of programs recorded on videotape. The demand had been easily satisfied by machine-to-machine recording methods in professional broadcasting and by the users of helical scan recorders.

The impact, however, of the cassette recorder has radically changed the situation and has produced a considerable need for duplicating facilities. The ease with which these machines can be operated has allowed their introduction into many places where people would be unable to operate a normal VTR. Machines which have only the ability to replay pre-recorded tapes are being extensively used for the entertainment of ships crews, the training of staff, company communication and as an aid to selling sophisticated products.

At present the main advantage which film and, ultimately, the videodisc systems retain over videotape recording is the ease with which the program can be duplicated at high speed. Before discussing the competitive systems for use with videotape it is essential that the characteristics of videotape are understood for it is the tape characteristics which determine the feasibility of the systems.

**Some applications of coding theory to broadcasting**, M. E. B. Moffat, *BBC Eng.* 21-27, Mar. 1974.

The paper discusses ways in which certain aspects of message coding theory have been applied to television and sound broadcasting and are also being studied for possible future

# 15 feet of film can win an award,

# if you treat it right.

**You've just used the new Eastman Kodak 5247 or 7247 color negative.** Whether it's a 10-second TV spot or a four-hour epic, at Movielab any of your best efforts are entitled to all of our best efforts. The most skilled technicians. The most advanced facilities. The most precise processing. The most versatile custom services.

Movielab has grown to its position of

importance because of its attention to detail and devoted customer service. All camera originals—whether Eastman Kodak or Fuji—preflashing, postflashing, forced developing, dailies, release printing, CRI liquid gate blowups—whatever your processing need—Movielab can do it.

If you want special handling for your special footage, don't gamble, pick a winner. Send it to Movielab. We'll treat it right.



It's all the little things we do that make us big.

IN THE EAST: 619 WEST 54TH ST., NEW YORK, N.Y. 10019. (212) 586-0360 IN THE WEST: 6823 SANTA MONICA BLVD., HOLLYWOOD, CAL. 90038. (213) 469-5981

application. Examples given include work on signal compression, particularly for color television, digital and hybrid transmission of sound and video signals, television standards conversion, and orthogonal transformation of pictures.

**An image intensification and video recording system for astronomical observations**, Marvin M. Hoffman, William Mort Sanders, and Donald H. Liebenberg, *Opt. Eng.* 14: 76-80, Jan./Feb. 1975.

An airborne telescope utilizing a scanning interferometer and video recording system has been used by the Los Alamos Scientific Laboratory for coronal-emission-line-profile measurements during the total solar eclipses of 1972 and 1973. A 250-mm diameter  $f/8.0$  achromatic doublet refractor served as the objective lens, and a pressure scanned Fabry-Perot interferometer with narrow band transmission filters provided 0.005 nm spectral resolution of the selected emission lines. A variable-gain channel-plate image intensifier, fiber-optically coupled to an  $Sb_2S_3$  vidicon tube, was adapted for use as a high sensitivity image detector. At maximum sensitivity this system was capable of recording a video image with signals as small as  $5 \times 10^{-9} J/m^2$  incident upon the intensifier photocathode. The vidicon tube was scanned at a rate of 60 fields per second in a 500-line, non-interlaced television format. The composite video signals were recorded on standard video tapes from which they were digitized for subsequent computer processing.

**Three-filter colorimetry of color television picture tubes**, G. M. Ehemann, Jr., *RCA Rev.*, 36: 254-273, June 1975.

This paper presents the derivation and description of a technique for measuring color-picture-tube chromaticity and luminous efficiency. The derivation is based on Grassmann's equation and the linear model of a three-filter colorimeter. Three colorimeter channel readings are taken of each of the three primary fields, which are sequentially excited in a  $4 \times 4$ -in raster. The colorimeter filters are simple red, green, and blue band-pass filters. Complete colorimetric information is obtained from the nine channel readings of a tube under test after a known standard tube is used to calibrate the colorimeter. The standard is calibrated conventionally using a spectroradiometer and a footcandle meter. A computer program is used to produce the following information: (1) chromaticities  $x, y$  of each primary field of the tube being tested; (2) efficiencies ( $fL/\mu A$ ) of each primary field; and (3) required currents in the primary fields of the tube under test, which are needed to produce any specified color mixture. The system efficiency in  $fL/\mu A$  is also printed out for each specified color mixture.

**Application of P.C.M. to broadcast quality video signals**, V. G. Devereux, *Radio Electron. Eng.*, 44: 373-381, July 1974.

Subjective tests have been performed to establish the sampling rate and the number of quantizing levels or corresponding bits per sample which should be used to obtain broad-

cast-quality television pictures from a P.C.M. system handling PAL color, 625-line, 5.5 MHz video signals according to the UK standard (CCIR Standard 1). The tests included an investigation of adding "dither" signals to the video signals prior to the P.C.M. encoder as a means of reducing the required number of bits per sample. An effective dither signal is proposed which breaks up coherent quantizing errors such as "contouring" effects and replaces them with less noticeable random quantizing errors.

A theoretical estimate of the required number of bits per sample is derived by comparing calculated values of the magnitude of quantizing noise with the existing specification for random noise allowable on analog links.

The paper also gives brief details of the P.C.M. coder and decoder developed by the author and used in the tests carried out in the BBC Research Department.

**A method of generating a high-quality circle test pattern for television**, P. Lappalainen, *Radio Electron. Eng.*, 43: 355-362, June 1973.

In this paper a method of generating a circle test pattern for television is described. An important feature of the method is the use of switching matrices as the source of line information. Corresponding generator organization is given and the generated test pattern is shown.

**Monochrome and color television standards**, E. M. Leyton, *RCA Eng.*, 20: 38-41, Oct./Nov. 1974.

For the past few years, there has been a considerable amount of interest in the color television systems to be used throughout the world. In writing about color systems, there is an immediate difficulty because of the lack of standardization in the meaning of the word *systems*. The International Radio Consultative Committee (CCIR) recognizes a number of different television systems and each system is clearly defined. In this paper the various methods of transmitting color television, such as NTSC, PAL, and SECAM, will also be referred to as *systems* to indicate the general scheme used that can be modified for use with different monochrome standards. It is hoped that the two meanings used for the word *system* will not be too confusing.

It has always been impossible to obtain international agreement on television standards, and it is interesting to review what has happened in the past to understand some of the reasons for the present difficulties with standardization.

**Basic, highly maintainable airborne video tape recorder/reproducer**, P. F. Muraco, *RCA Eng.*, 20: 80-83, Oct./Nov. 1974.

The AN/USH-17 family of airborne video recorders is described in this paper. The basic USH-17 can be used to record and reproduce the display signals for an airborne forward-looking multimode mapping radar, while simultaneously recording the output of another wideband electrooptical sensor as well as voice and digital data. The USH-17 embodies state-of-the-art video recording techniques, coupled with modularity and packaging concepts that provide simplicity of maintenance as well as reliable operation; yet size and weight have been reduced so that the unit can be operated in small attack aircraft. Other versions of the basic equipment have been adapted to other

**STANDARD REAGENTS**

for Kodachrome and other processes

- One gallon or fifty
- Guaranteed Accuracy
- Customized Service
- Shipped in 24 hrs.

Get full details from:  
**CHEMICAL SERVICE LABORATORIES**  
 5602 E. Mockingbird Lane Suite 107  
 Dallas, Texas 75206 (214) 826-5640

**ANNOUNCING:**

# THE MANUAL FOR THE THIRD REVOLUTION.

## **ENG/FIELD PRODUCTION HANDBOOK— GUIDE TO USING MINI VIDEO EQUIPMENT.**

Electronic News Gathering is here today. It is being brought in by a flood of new mini-equipment—light-weight, high quality video cameras and videotape recorders.

It is the Third Revolution in TV, comparable to the quad videotape development of the 50's and the explosion into color of the 60's.

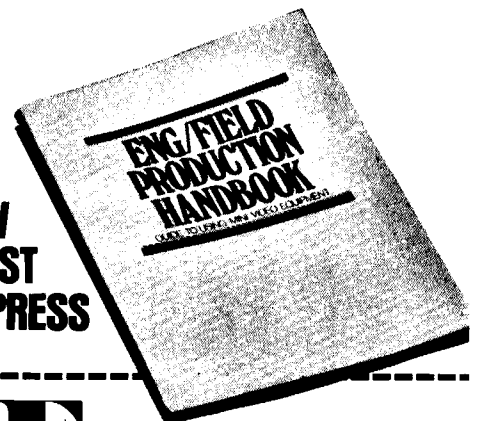
The ENG wave can only roll bigger and faster, but that is not all the new mini-equipment will do. It will generate a wave of instant, "anywhere" inexpensive documentaries, commercials, video for business and personal communications. Mini-equipment offers a new production technology: studios-without-walls, editing without engineers, professional results at amateur costs. This Electronic Field Production will be another video revolution.

This Manual is the first publication that describes the new mini-equipment in full detail, and provides a complete user's guide to both of the new technologies—ENG and Field Production.

This book is skillfully edited for the technical and non-technical reader alike; broadcasters and non-broadcasters. It's a great compilation of facts for the experienced hand, it's a primer for managers, directors, engineers and technicians looking at all electronic news and field production for the first time.

**Ten big chapters:** 1. the ENG/EFP revolution and where it's going 2. ENG systems in use 3. significance of all electronic systems 4. mini-portable cameras 5. portable videotape recorders 6. tape editors 7. time base correctors 8. microwave links 9. program audio and intercom 10. future developments.

**JOIN THE  
REVOLUTION NOW  
AND RECEIVE FIRST  
COPIES OFF THE PRESS**



**BME**  
BROADCAST MANAGEMENT ENGINEERING

295 Madison Ave. New York, N.Y. 10017

Please send (    copies) of ENG/Field Production Handbook at \$9.95 per copy.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Total Amount \$ \_\_\_\_\_

N.Y.S. Residents 7% Sales Tax \_\_\_\_\_

Total enclosed \$ \_\_\_\_\_

Foreign orders: add \$1 for postage & handling.

**DON'T  
SHOUT!**



**Communicator®**  
hears you.

There's no need to shout or hand signal any longer. The IDI Communicator® hears you and provides constant wireless two-way communications up to 100 yards apart.

It's light and portable. The IDI Miniset® has a noise-cancelling boom mike, making a whisper audible even in high ambient noise areas . . . without touching a button.

Call us now for sale or rental.

New Address:

1825 NE 149 Street Miami, Florida USA 33181

305/945-1111

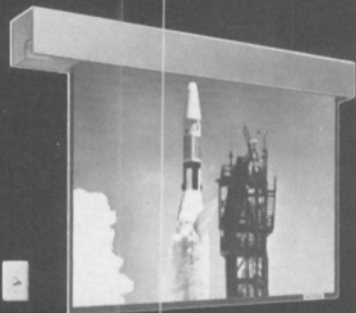
Telex 51-9348

TWX 810/845-4242



**IMAGE  
DEVICES**  
INCORPORATED

**Screening Room  
Satisfaction  
Guaranteed**



**DA-LITE** Automatic  
Electrol®  
Projection Screens

The ultimate convenience for screening rooms, conference rooms, briefing rooms and auditoriums. A brilliant White Magic® glass beaded screen appears at the touch of a button, glides out of sight when not in use. Also available in non-gloss Mat White. Choose one of several models of Da-Lite automatic electric screens in sizes from 50" x 50" to 12' x 24". See your Da-Lite audiovisual specialist. For his name, write or call:

**DA-LITE SCREEN CO., INC.**  
Warsaw, IN 46580 219-267-8101

wideband dual-channel airborne recording applications.

**Is circularly polarized TV coming?**, M. S. Siukola, *IEEE Trans. Broadcast.*, vol. BC-21, No. 1, Mar. 1975.

The circularly polarized mode of transmission has been proposed for TV. This paper reviews the theoretical aspects and corresponding advantages of circular polarization, such as improved local service, less critical antenna-orientation requirements, ghost-reduction capability, and potential advantages available for co-channel and adjacent-channel interference reduction. Should these features be verified by field tests, the results will be submitted to the FCC for consideration as part of the rule-making process. When the FCC adopts rules for circular polarization, and opportunity will exist to improve the quality of television broadcast service to the public.

#### TESTS, MEASUREMENTS AND ANALYSES

**Computerized image analysis at the Los Alamos Scientific Laboratory**, D. H. Janney and B. R. Hunt, *Opt. Eng.*, 14: 73-75, Jan./Feb. 1975.

The Los Alamos Scientific Laboratory (LASL) maintains an active and broad program of computerized image analysis. Initially begun as an image enhancement adjunct to a flash radiographic facility, the base of experience has now been expanded to include med-

ical and industrial radiography, astronomical observations, and high-speed framing camera images. In addition to classical image enhancement and restoration, there is now activity in precision high-speed data extraction, often as an end in itself without the need for the analyst to view the image once it is digitized and supplied to the computer. Examples of various applications are given. In order to support these activities LASL has developed a library of image analysis subroutines, and is now developing a user-oriented command language. A substantial hardware installation has been developed. An active research program for development of new digital techniques of image restoration is maintained.

## Erratum

OCTOBER 1975 *Journal*, pp. 828, 829

The photograph that appears in **New Products** over the item in the third column, last paragraph on p. 828, "A new 18 frames/gear-set for the Arri 16BL . . ." is in the wrong place. Rightfully it should appear above the first item on p. 830, "The Arri Precision Exposure Control (APEC) . . ." The photograph that appears above that item should be moved down to illustrate the next item on p. 830, "A new variable-speed crystal-controlled motor conversion for Eclair ACL cameras . . ."



# classified

Rates: First 3 lines \$10.00; each additional line \$2.00

## Employment Service

These notices are published for the service of the membership and the field. They are inserted three months, at no charge to the member. The Society's address cannot be used for replies.

### Positions Available

**General Manager.** Motion picture equipment manufacturing company. Requirements include necessary administrative capabilities to operate company, complete knowledge of motion-picture processing laboratory operations, technical capability to closely supervise mechanical and electronic engineers, ability to provide detailed specifications and equipment for new motion-picture processing labs, knowledge of international laboratory operations. Those qualified are requested to send complete resume and salary requirement to: P.O. Box 38536, Hollywood, CA 90038.

**Producer/Director for Community College C.C.T.V.** Experienced production know-how for color studio. Creative, strong writing, and ability to understand and implement instruction design, develop programs. Master's degree required. Salary based on qualifications and experience. Apply: E. F. Seminara, Director, Library Learning Center, Niagara County Community College, Sanborn, NY 14132.

### Positions Wanted

**Engineer, Mechanical.** 20 years experience in project design and production planning. Motion-picture

editing equipment, magnetic tape transport, film splicer. High speed projection with multi-side rotating prism, ultra sonic film splicing. Experience in precision machining and low-quantity production including stamping, casting and plastics. B.S. Mech/Opt. Engineering Management and Industrial Design including Styling. Excellent references. Al Scidler, 1448 N. Francis Ave., Upland, CA 91786 (714) 982-9200.

**Film Production.** Knowledgeable and energetic young filmmaker. Experienced in cinematography, lighting, sound and editing; 16mm & 35mm film. MA degree in film. Dependable, will relocate. Resume available. David Parrish, 221 E. Church #5, Iowa City, IA 52240 (319) 353-4403.

**Queens College Graduate.** With a B.A. in media studies. Experienced in all phases of film production. Seeking a position in film media. Write: Carl Paolina, 22-45 95th St., Jackson Heights, NY 11369 or phone: (212) 639-4782.

**Film Cleaning.** Nationally recognized expert in film cleaning and scratch removal systems seeks employment to establish profitable department for laboratory, library or distributor. Will provide all know-how including machine design, chemistry and national sales contacts. 12-V, 2100 Linwood Ave., Fort Lee, NJ 07024.

**Media Center Video Engineer.** BSEE, FCC first class telephone license. Has technical experience and ability to operate/maintain/calibrate and modify vidicon color equipment, TV cameras, TV recorders and related studio equipment. Heavy computer background. Please reply to: G. F., P. O. Box 1514, Studio City, CA 91604.