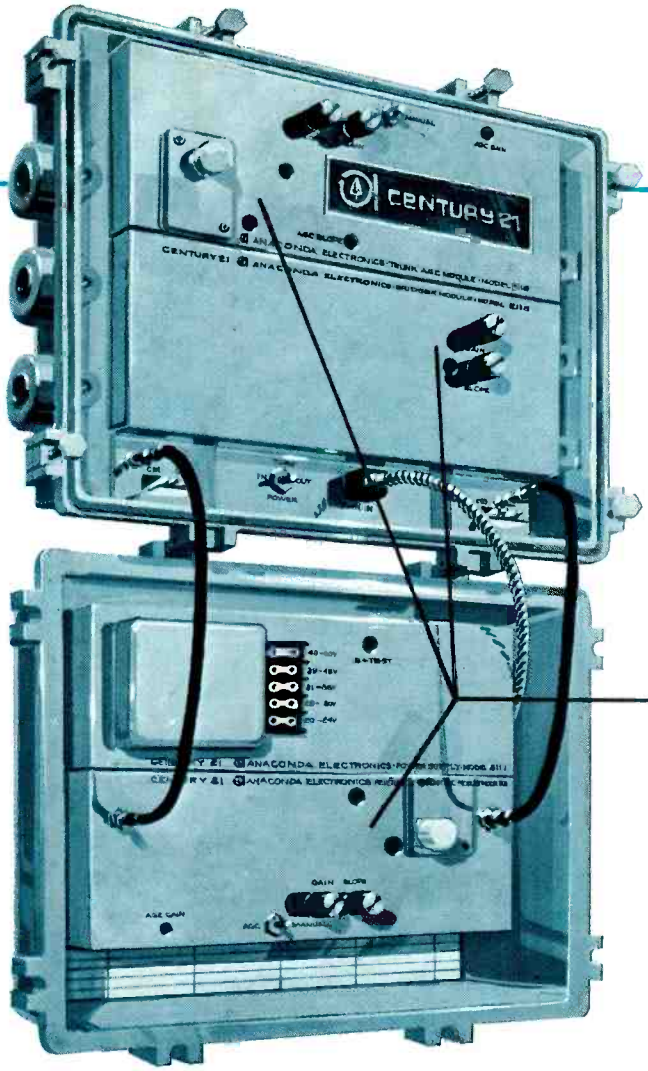
A MACTIER PUBLICATION / JULY 1970

BM/E

BROADCAST MANAGEMENT/ENGINEERING

Color Monitor Setup: Still Mostly Subjective

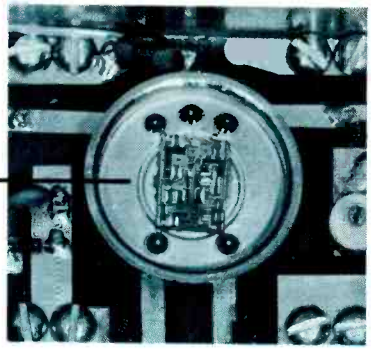


Introducing

Century 21

The CATV Industry's
First Hybrid Integrated-Circuit
Push-Pull Amplifier.

Here's the heart of it!



High quality and improved reliability of hybrid thin-film amplifier (shown actual size) meets stringent requirements of today's wideband cable communications systems. The RF microcircuit in hermetically sealed package provides superior operational characteristics in trunk, bridgers, distribution and reverse amplifier applications.

Enter: The age of sophisticated thin-film circuitry for CATV cable systems!

How do you design quality service into large, elaborate metropolitan cable systems? . . . quality that keeps subscribers satisfied?

One of the best places to start is with the amplifiers. Anaconda Electronics did. And, the result is this new hybrid IC, Century 21 Amplifier.

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The reason why an IC amplifier delivers better quality signals than conventional amplifiers is that thin-film hybrid microcircuits make it possible to incorporate as much sophistication, or circuit complexity, as is absolutely necessary for the best possible performance with optimum reliability or repeatability.

Anaconda Electronic's use of advanced IC techniques in the Century 21 results in a minimum number of discrete components thus affording a high reliability factor in each unit.

The totally modular Century 21 is basically a high-performance, unidirectional, push-pull CATV amplifier, but designed with optional two-way transmission capabilities.

This new amplifier not only provides excellent stability and repeatability, but it offers the broadest bandwidth of any cable communications amplifier available today.

For the best built-in quality throughout your cable system, no matter how large (or small) get all the facts about Century 21, the new one from Anaconda Electronics — first in IC technology. You'll see it at booths 3-14 & 3-15 at the 1970 Chicago NCTA Convention.

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JULY 1970/VOLUME 6/NUMBER 7

BM/E

BROADCAST MANAGEMENT/ ENGINEERING

This month's cover: There is no accounting for taste in setting up color monitors. So, if you don't use the instruments—described in the article beginning on page 28—when all else fails, follow the instruction book. It helps, says both Ball Bros. and Conrac. And never use a troika.

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BM/E, Broadcast Management/Engineering, is published monthly by Mactier Publishing Corp. All notices pertaining to undeliverable mail or subscriptions should be addressed to 820 Second Ave., New York, N.Y. 10017.

BM/E is circulated without charge to those responsible for station operation and for specifying and authorizing the purchase of equipment used in broadcast facilities. These facilities include AM, FM, and TV broadcast stations; CATV systems; ETV stations, networks and studios; audio and video recording studios; consultants, etc. Subscription prices to others: $15.00 one year, $25.00 two years.

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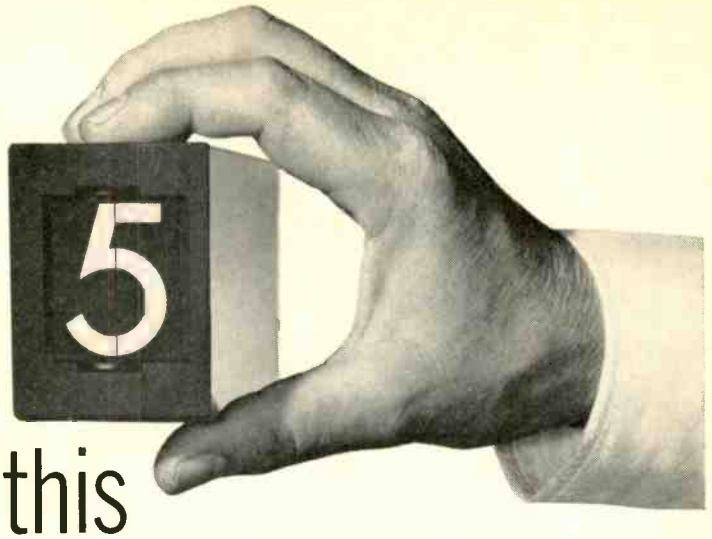
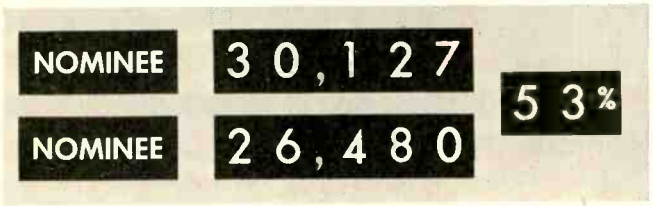
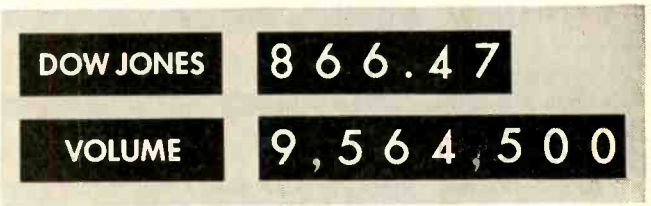
Look what your cameras can do with display units like this



CBS Laboratories' Digital Display Units are part of
a low cost, compact system that works daily wonders in any size TV studio!



ELECTIONS – No contest.
These modular units were designed specifically for TV use to give optimum clarity up to 70 feet — from any camera angle up to 145 degrees.



STOCK REPORTS – Excellent for the long pull.
Rugged electro-mechanical operation is fool-proof and built to last. No bulb burn-out or the other problems of rear-illuminated displays.

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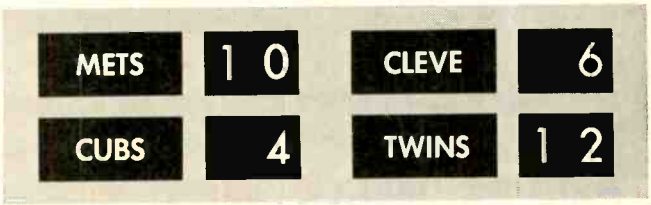
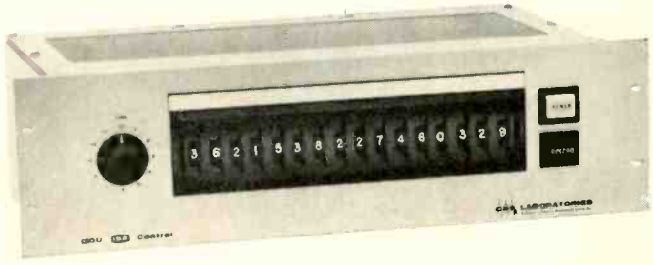
Only 2.7 watts required per unit, with no power between postings. Glare-free even under the strongest lighting conditions.



SPORTS – An easy set-up.
Just stack these units in a flat to suit any requirement. Custom designed matrix wiring also available for complete flexibility.

And all operated by one Controller that can handle 192 units — as many as 12 groups of 16 units each. This means up to 12 two-candidate election races; or runs, hits and errors for all major league teams; or 40 local stock issues plus volume and Dow Jones closing. A one-time investment for the professional way to take care of all your daily display needs.

Our engineers will even design your system for you. Don't take our word for it. Write or call us collect (203) 327-2000, and let us show you.



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BROADCAST INDUSTRY NEWS

Broadcast obscenity—What can the FCC do?

The Commission's battle against four-letter words of various lengths is going slowly.

Chairman Burch's hope has been that clarified legal standards of obscenity would help, but he hasn't been able to get such clarification. WUHY-FM (a Philadelphia educational station) was charged with "indecency" in an FCC attempt to set up a test case. The station, however, paid the hundred-dollar fine instead of undertaking the struggle in court.

Apparently willing to share Chairman Burch's admitted reputation as a "bluenose," Commissioner R. E. Lee came out officially against "profanity and subversive comments" found in Top 100 rock music. One response to that was a condemnation by delegates to the International Radio and Television Society: "We believe that what you are seeking to do is not to serve the public, but to mold it."

Another response came from the NAB, which pointed out that its code of good practice bans obscene and pornographic material from the air, and that "freedom of expression would be endangered if any particular group—private or government—were to substitute its judgment for the good faith judgment of individual broadcast licensees in the sensitive area of program content."

Now in the works is the short-term renewal of another educational station, KRAB-FM (Seattle). The FCC granted only short-term renewal because the station broadcast, back in 1967 an "autobiographical" tape prepared by a local minister. The tape contained several four-letter words used several times.

This might build into a polarizing case, even though no legal standards will be determined from the outcome. CBS has declared that a sizeable question of programming control is at stake here, and that the Commission's action "can only have the effect of deterring broadcasters from undertaking the presentation of controversial subject matter." Arguing that the FCC's use of short-term renewal in this case is punitive and allows no judicial review, CBS filed a brief in support of the KRAB motion for reconsideration.

The CBS brief complains: "This ruling fosters adherence to tried and true programming techniques and would deny the public the opportunity to receive and to judge the merits of new and different broadcast concepts, which may result in programs which are refreshingly exciting or completely boring."

While the obscenity controversy may resolve into a test case or a change in FCC policy, there seems to be little that anyone can do yet. Reports have it, however, that complaints about broadcast obscenity have increased; and, at least, the FCC has been able to take action on that issue. It is rewriting the form-letter response to such complaints, stressing in the answer that the Commission can't do anything unless the violations are "willful and repeated." Judging from what has been happening, who can disagree?

ITV Products Plentiful at DAVI

If all of the 100 plus electronic exhibits at the Department of Audio Visual Instruction Convention were grouped together—rather then dispersed amongst the 350 total exhibits—it would look like another NAEB show. All of the well known TV manufacturers and CCTV distributors were at the April 27-May 2 Detroit meeting. So were accessory manufacturers such as the pedestal manufacturer, Davis and Sanford. Two manufacturers showed the new EIAJ standard for ½-inch video tape recorders—Sony and Panasonic. Tapes recorded in one booth were played back in the other, proving interchangeability is finally here in the helical-scan field.

Visual data memory for random playback from a new company, National Electro-Mechanical Systems.

TV on a golf-caddy-like cart was displayed by Newell Industries. Big feature was a slow motion, stop action video disc recorder ($2995) for 20 sec of instant playback. Also from Newell of interest to CATV originators, as well as educators, was a desktop video flip chart (see photo) which holds 45 message cards 3½ by 5 inches in size.

A compact memory capable of storing 30,000 frames of visual data, for projection in still or motion sequences, was shown by a new company, National Electro-Mechanical Systems Inc. Unit also had a high speed search capability.

New dial-retrieval systems were shown by Tele-Norm and Riker-Maxson.

For more information on these products use the Reader Service Card:

301	One-half inch standardized VTRs
302	TV systems from Newell Industries
303	Visual data memory file from NEMS
304	Dial retrieval systems

New, inexpensive, easy-to-change message flipper for CCTV, CATV, from Newell Industries.

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Total computer service from Sarkes Tarzian

At the NAB Convention in April, Sarkes Tarzian had the beginning of a new system behind glass. A pair of lissome gals pantomimed the total capabilities of TASCOM which stands for *T*elevision *A*utomation *S*ystem by *Com*puter. On May 26 at the studios of WTMJ-TV, Milwaukee, Sarkes Tarzian came out from behind its glass wall and, with a torrent of words, set out in earnest to get some of the 50-odd TV managers present to sign a contract for the new service.

The TASCOM plan integrates automated video switching and program scheduling with the business functions of sales, accounting and management. To make the cost attractive to medium-sized stations, and for that matter, skeptical top-market leaders, S-T proposes to use only one central computer—an IBM 360-50—which is to be time-shared with the participating stations. Each station will have its own video switcher computer (the APT-2000 by S-T), CRT input and display terminal, disc memory, teletypewriter and line printer. The whole bit will rent for $9000 a month.

For this investment, TASCOM provides instant availabilities and adjacencies for any program with full info on demographics, ratings, and cpm. The computer will help make some lightning-speed decisions on preemptions and rescheduling so you can "oversell" without getting into trouble. It goes without saying that the central computer: helps make up a workable daily schedule, prints the log, interfaces and presets the automated switcher, prints out a verification log for the FCC, and does verified billing on time.

On-time billing will save money on faster collection of accounts receivable and at the same time the computer can manage the film inventory smartly so money can be saved in that department. And any variety of weekly management reports will present realtime rather than after-the-fact management decisions.

At least a dozen customers are necessary to make the system viable, says Jim Moneyhun, product manager, and it will take about a year to get the entire system operational.

The company seeks a four year commitment, but no payments are due until equipment is delivered and working. A logical initial step, says Moneyhun, is to install and begin using the APT-2000 video switcher. More TASCOM details will be covered in a future issue of *BM/E*.

Two-way video signal converters close overseas standards gap

About $350,000 worth of equipment called the International Standards Converter is now commercially available. The American model ("Argonaut," distributed by Andersen Labs) converts British color video signals, with a 625-line, 50-field picture, to the 525-line, 60-field color picture conforming to American standards. The European model, shown here, was used by Independent Television News of London to receive and retransmit, to over 350 million viewers, the World Cup Soccer Championships from Mexico City. The model, being checked out by ITN's Peter Ward (right) and Andrew Tucker from Rank, is marketed by the broadcast division of the Rank Organization and translates American to English standards. (See "Unscrambling those European Colorcasts," *BM/E* July, 1969, for a description of the process used for conversion.) Not only will these systems open up a new market for American videotaped programs, but they will also make it easier to bring programming from overseas. No longer will American broadcasters need to get the show on film, or tape it with American equipment. Also, "live" or videotape telecasts from Europe can be picked up and rebroadcast (through the converter) for immediate airing in the U.S.

First all-news television station?

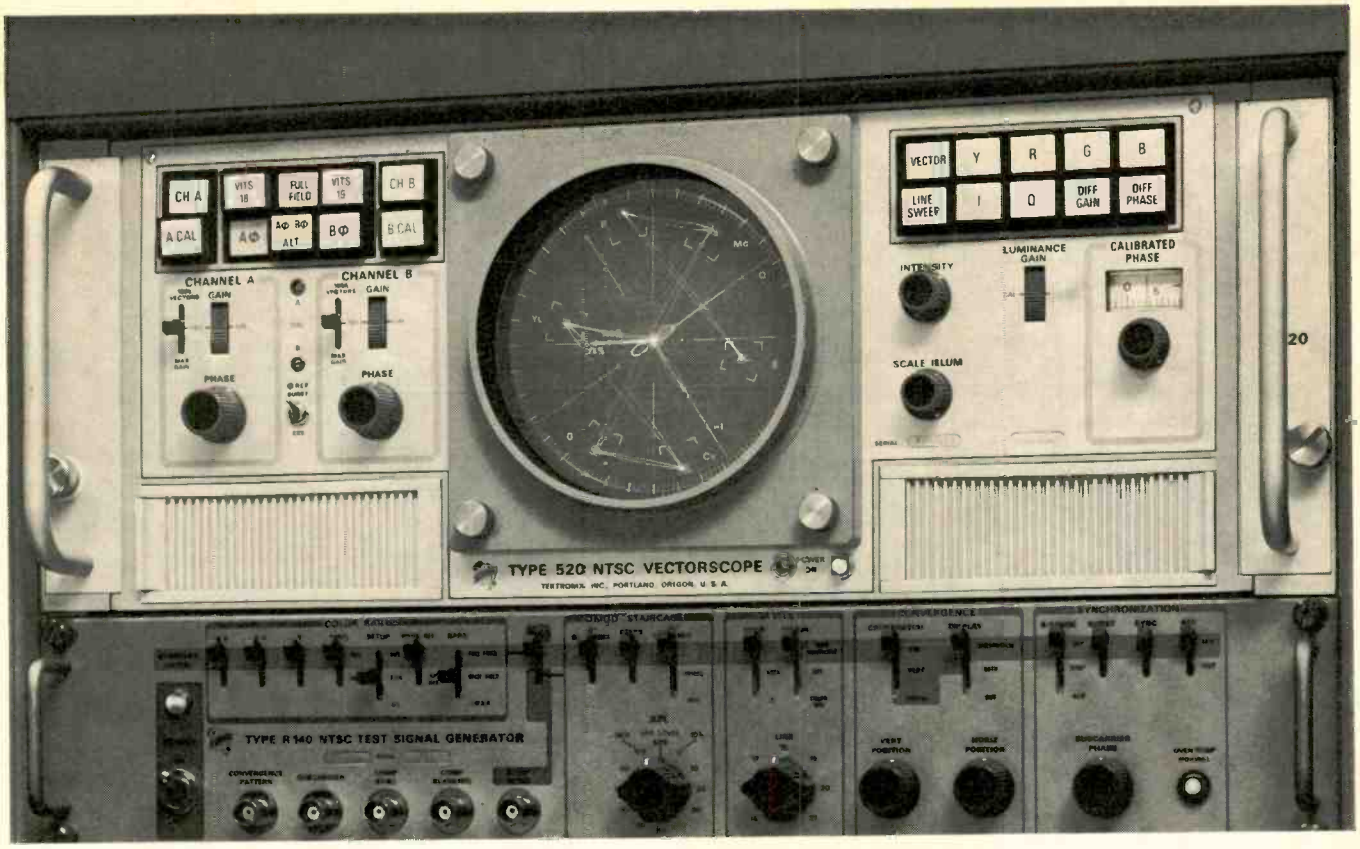
Coming on the air April 5 (during the NAB convention) WSNS Chicago became the first TV station to broadcast nothing but news, sports, stock market reports, weather, and time information during its 18-hour broadcast day. Material is presented in teletype form, hard copy which crawls up the screen, much like CATV cablecasting practice. WSNS uses split-screen technique to present color commercial copy along with news. Audio consists of music.

WSNS broadcasts with a 55-kW Ampex uhf transmitter operating on channel 44 from the 97th floor of the John Hancock building.

IN BRIEF . . .

The FCC is trying to streamline its legal procedures. The Commission's Procedural Review Committee has made four proposals: simplify or eliminate comparative hearings; assign counsel in cases of financial need; establish offices of public counsel in the Broadcast Bureau and other Bureaus; and put out a book on Commission procedure. The FCC now has these ideas under consideration.

Rosel Hyde had an answer to recent government criticism of broadcasting news service. "A free, unsubservient press, as someone has said, is probably the greatest bulwark to our liberties," the former FCC Chairman claimed, adding: "It should be the press checking upon the integrity of government; the government must make sure that it does not interfere with the freedom of the press



convenient color signal measurements

- **Advanced measurement capabilities**
- **Push-button operating convenience**
- **Dual-display inputs**
- **All silicon solid-state reliability. Cool, quiet operation**

The Tektronix Type 520 NTSC Vectorscope provides new operator convenience, advanced measurement capability and silicon solid-state reliability. Push-button operating controls permit rapid selection of displays for quick analysis of color signal characteristics. A luminance channel separates the luminance (Y) component of composite color signals for display at a line rate. Combining the Y component with the chrominance demodulator outputs provides displays of the Red (R), Green (G), and Blue (B) values, revealing luminance to chrominance amplitude and delay errors if present. Line Rate displays of chrominance demodulated along the I or Q axis are provided for checking encoder performance.

Phase and amplitude accuracy of the vector presentation is verified by internally generated test signals. Errors in color encoding, video tape recording or transmission processes are readily apparent and are easily measured. Separate 0° to 360° phase shifters provide independent phase control of channel A and B displays. Excellent resolution for measuring small phase-angles is provided by a 30° precision calibrated phase shifter where 1 inch of dial movement represents approximately 1° of phase shift. Differential gain and differential phase measurements are made with accuracies within 1% for gain and 0.2° for phase. A unique graticule switching arrangement provides automatic selection of an IRE graticule or an illuminated parallax-free vector graticule. The selection occurs at the same time the operating mode is established.

The Type 520 Vectorscope provides the ability to check equipment performance during regular programming times through the utilization of Vertical Interval Test Signals. A digital line selector permits positive selection of Vertical Interval Test Signals from lines 7 through 21 of either field 1 or field 2.

For a demonstration contact your nearby Tektronix field engineer or write: Tektronix, Inc., P. O. Box 500, Beaverton, Oregon 97005.

Type 520 NTSC Vectorscope $2150
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to perform this function." He was speaking for a tape program prepared by CBS Radio for the system's network affiliates.

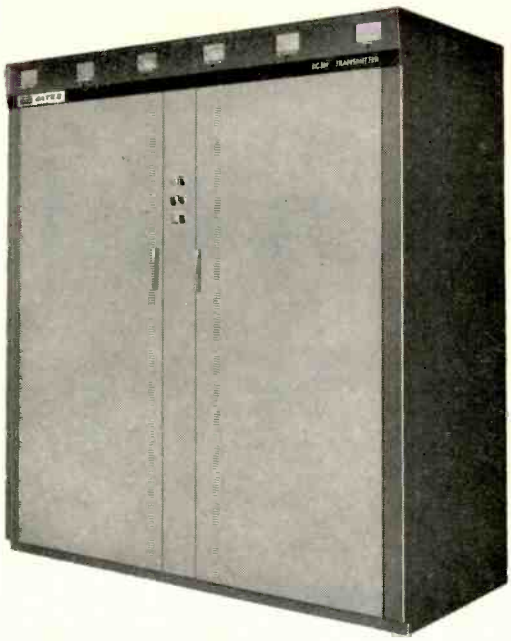
Another answer came from NAB v-p for public relations John Couric, speaking to the Oregon Association of Broadcasters. "Grave and sinister implications about freedom of the press are inevitable" when top government officials publicly denounce the news media, he said, warning that the result of "misdirected invective" may be "intimidation and fear in the news profession and the growth of unfavorable and distorted public opinion."

The merger will probably take place now that the FCC has approved the Times Herald Printing (Dallas) move into Times Mirror Company (Los Angeles). This means KRLD-TV will be transferred to the Los Angeles Times' publishers. Also, the Commission approved sale of Times Herald's KRLD-AM-FM to a Dallas company (owned principally by the family of the city's mayor) with the requirement that one of the stations be disposed of to conform to the FCC's new one-to-a-market rules.

Canadian TV will have more programming of Canadian origin under new rules issued by the Canadian Radio-Television Commission. The rules limit to 30% from any one country the amount of foreign programming a station can air. At least 60% of total programming must be originated in Canada. The rules take effect October 1, 1970, for the publicly owned CBC, and two years later for privately owned stations. The country's AM radios' Canadian music content will have to be at least 30% by January 18, 1971.

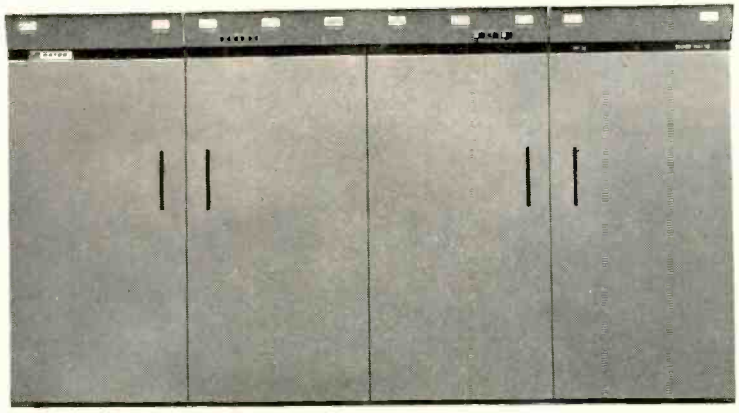
Business notes: Certron has formed an audio/visual education division, headed by Al Kovac, planning big things for cassettes—major price breakthrough is going to make it all practical. For the first three months through March 1970, **Citizens Financial Corporation** (financial service and telecommunication company) took in revenues of $4,186,652, up from '69's $3.5 million, with net income of $261,198, down four cents a share from last year. Recently the corp. reached an agreement in principle to merge its wholly-owned subsidiary **Tower Communications** into **Communications Properties,** an operating CATV company which itself announced plans to form a Mexican subsidiary, **CPI Cable International. Continental Telecommunications Corp.** is a new subsidiary of **Continental Telephone Corp.**—it will survey markets for construction and leasing of private line and terminal facilities. For the first nine months of its fiscal year, **Lafayette Radio Electronics** announced an income of $2,371,348, or 97 cents a share, down from last year's $2.5 million, $1.01 a share. First quarter 1970 net income at **Metromedia** went over $300,000, or five cents a share—considerably higher than last year's $61,000, one cent per share. Negotiations continue over the sale of **Ward/Davis Associates Video Systems Division** by **KRATOS** to **TeleMation. Westel** moved to a 31,000 sq ft building, tripling its plant capacity for building videotape recording systems. The company will introduce several new proprietary VTR systems this summer.

For quality in AM transmitters... look and listen to Gates

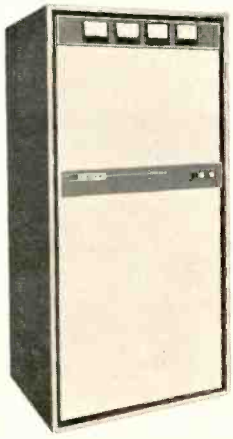


BC-10H. 10 kW. Only 5 tubes. Makes maximum use of solid state technology. Only 15.4 square feet of floor space required.

BC-5H. 5 kW. Power amplifier efficiency approaches 90%. Dependable ceramic type 3CX2500F3 triodes employed in modulator and PA stages.



VP-50. 50 kW. Lowest tube cost of any 50 kW model. Low power consumption—only 125 kW at 100% modulation. Solid state low level circuitry.



BC-1G. 1 kW. Heavy-duty 833A power amplifier and modulator tubes. Convection cooled dummy antenna. Power reduction to 250 watts. All components are easily accessible.

Gates offers the ultimate in quality AM transmitters to satisfy every broadcasting need. For more information on these or any of our many other AM transmitters, write today. Gates, 123 Hampshire Street, Quincy, Illinois 62301.

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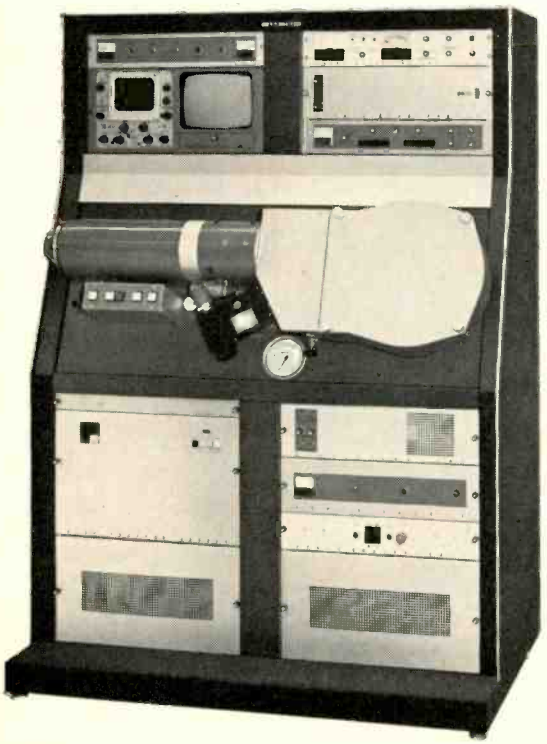

EBR-100 Electron Beam Recorder —the better way to transfer tape to film. Here's why:

- ☐ Sharper, low-noise picture on standard 16mm film.
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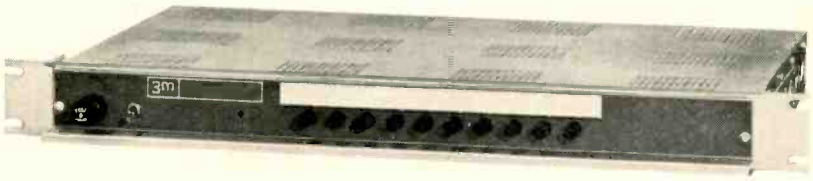
- ☐ Electronic shutter.
- ☐ Fine-grain, economical film stock for quality image.

Most advanced tape to film transfer system in the world.

Color Video Encoder has (2) one-of-a-kind unique features. First, the color bar generator is completely digital. You get a signal that's accurate. It needs no adjustments. And it's easier to use and maintain. Second, input clamping of video signals eliminates low frequency hum, noise and other unwanted effects on the matrix. Works with smaller, less expensive cameras as well as large ones. The SMPTE color test will give you the proof. It meets all FCC and EIA specs. And features special monochrome switching.

Look to 3M for specialized products for high quality video performance.

The Bridging Video Switcher is a 10 input switching video distribution amplifier with extremely high quality video performance specifications. Audio-follow switching is included as standard equipment. Inputs can be looped and switchers stacked to make routing switchers up to 10 x 20. Input and output grounds are isolated. The video ground as well as the coax center conductor is switched through to the output. Switching does not cause a visible disturbance to the input line. For maximum signal handling performance at minimum cost, rely on the 3M Brand Bridging Video Switcher.



Dropout Compensator (DOC) replaces color dropout on your VTR reproduction with correct color video—all within the signal itself. In fact, the DOC detects dropouts as they occur and replaces the "lost" signal with stored information from the previous scan line of the same field. It provides precise color match and complete freedom from switching transients. The self balancing video switch prevents white flashes. Dropout disturbance to the time correction unit is eliminated.

Dropout Profile Recorder (DPR) is the perfect companion to the DOC. DPR produces a permanent strip chart of dropout rate during normal on-line video tape playback. It performs this evaluation electronically while the 3M DOC is compensating dropouts. DPR indicates when a tape is too degraded to use for valuable new recordings. Built-in precision calibrator. Five inches of chart reads one hour. Chart can be torn off and stored with the video tape.

If you're interested in one video product or all, simply phone (805) 482-1911 or write for our brochures.

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INTERPRETING THE FCC RULES & REGULATIONS

Seven-Day Rule Amended

A recent FCC news release reads, in part:

> Complaints to the Commission from the public during April [1970] totaled 3,298 . . . .
>
> Because of numerous local and state primary elections, there were a considerable number of complaints and inquiries regarding Section 315 of the Communications Act . . . .

All broadcast and cable licensees have an obligation to provide "equal time" to opposing candidates for public office. As the news release quoted above indicates, the "equal time" provisions of the Communications Act cause much concern and many problems.

The Commission, of course, has to balance the interests of the candidates with the interests of the licensee: the broadcaster must be able to plan his airtime and other schedules beforehand. Thus, to bring about advance notification to the broadcaster of his obligations to opposing candidates, the FCC adopted in 1959 what has become known as the "Seven Day Rule." It forces candidates to file their "equal time" requests early. This rule has been further refined and amended in 1970.

Seven Day Rule Examined

Suppose Candidate X purchased and used many hours of broadcast time during his entire campaign. Could his opponent, Candidate Z, wait until the last week before election day and then present his claim for equal time on your station? According to the Commission's "Seven-Day Rule" (before amendment in 1970), "a request for equal opportunities must be submitted to the licensee within one week of the day on which the prior use occurred."[1]

Under this rule, Candidate Z could not request equal time for those broadcasts that occurred *more than seven days before his request*. So, if Candidate X has purchased and used 18 hours during three months of his campaign, but used only one hour in the week preceding Candidate Z's request, Z would be *entitled* to only one hour of broadcast time under the "Seven-Day Rule" of the equal time provisions.

Suppose, however, Candidate X broadcasts a campaign speech on September 23. Within seven days, Candidate Y requests "equal time." Candidate Y's appearance is announced on the air before broadcast time. Candidate Z, learning of Y's forthcoming broadcast, makes a request for equal time, some 17 days *after* Candidate X used his air time. Has Candidate Z filed his request in time? Do the "equal time" provisions apply? Or, has Z been cut off by the "Seven-Day Rule?"

Before answering these questions, it would be appropriate to review Section 315 and examine its pertinent provisions.

Section 315 in General

Briefly, Section 315 provides that any broadcaster who allows the "use" of his facilities by any legally qualified candidate must provide "equal opportunities," without censorship, to all other such candidates with comparable times, rates, and treatment.

A "legally qualified candidate" is defined as one for whom the electorate can vote. If *write-in* candidates are permissible under your state or local law, then these individuals must be considered legally qualified candidates.

The term "use" of a broadcaster's facilities by a candidate is broadly defined as any and all appearances by a candidate *other than* for a bona fide newscast, news interview, news documentary, or on-the-spot coverage of a news event.

"Equal opportunities" is defined as comparable time, rates, and treatment. Comparable time does not necessarily mean the exact day, hour, and show, but, rather, about the same amount of time in a time segment of equal commercial value.

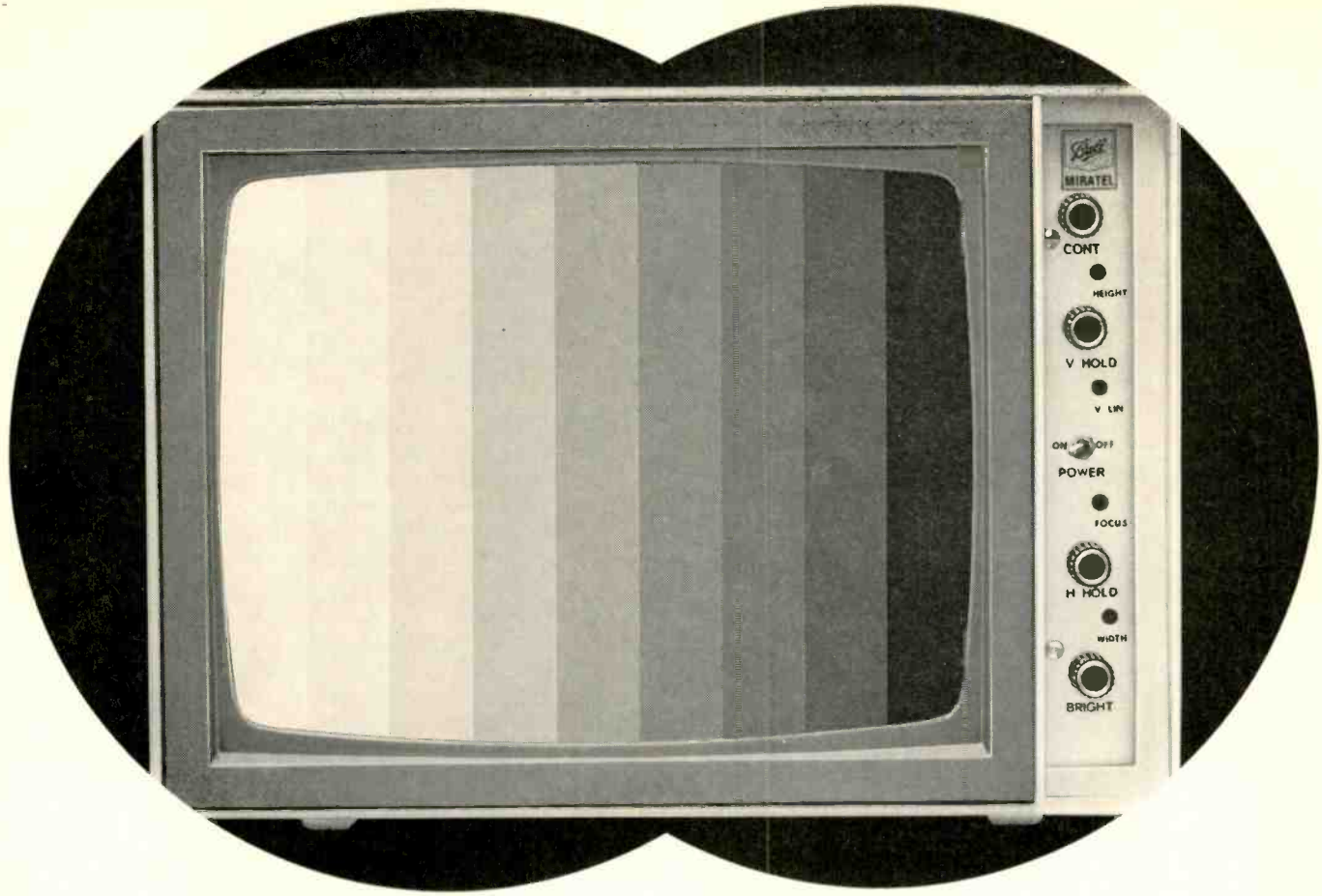
Keep this in mind and the simple statements of Section 315 and pertinent Commission rules become more meaningful. Of course, broadcasters must remember the most important rule: A station need not carry *any* political broadcast. However, if the station permits the use of its facilities by one candidate, it must afford equal opportunities to all candidates for *that* office during *that* campaign.

Amendment to "Seven-Day" Rule

Returning to our situation above, it is interesting to note that the Commission construed its Rule to hold that Candidate Z had "timely filed"

This section, providing broad interpretation of FCC rules and policies, does not substitute for competent legal counsel. Legal advice on any given problem is predicated on the particular facts of each case. Therefore, when specific problems arise, you would be well advised to consult your own legal counsel.

1. Sections 73.120(e) (AM stations); 73.290(e) (FM); 73.590(e) (Educational FM); 73.657(e) (TV); 74.1113(d) (CATV).



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The Ball Brothers Research Corporation TE-12 general purpose black and white monitor is designed for easy viewing, even at a distance.

Its large 12-inch screen gives you almost as much viewing area as ordinary 14-inch-screen models, and it fits in a rack space only 10½ inches high. You can get the TE-12 in a cabinet-mounted or chassis-mounted configuration, too.

The TE-12 features all-solid-state design for high reliability. Images are displayed with high clarity, thanks to the TE-12's 600-line resolution. And the high output voltage (12 kV) produces a brightness of 40 ft-lamberts—enough to permit easy viewing from across the control room under normal ambient light conditions.

Price of the TE-12 is only $350; $310 for the chassis-mounted version. So put down those binoculars, and write us for full specifications on the TE-12. You have nothing to lose but your eyestrain.

BBO/13

BALL BROTHERS RESEARCH CORPORATION, BOULDER, COLORADO 80302
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his request for equal time, even though such request was filed some 17 days after Candidate X had first "used" the broadcast facilities.[2]

A television station had argued that the "prior use" terminology of the "Seven-Day Rule" referred to the original telecast by Candidate Z. Declared the TV station:

> To reach any other conclusion would make possible a *chain* of "equal time" requests which would go on and on, each succeeding request triggered by a preceding grant of "equal time" and would negate completely the one-week cut-off which obviously is the underlying reason for . . . [the Rule].

Not so, replied the Commission. *The FCC's reasoning: The rule provided merely that the broadcaster must receive a request for equal time within one week of the day on which the prior use occurred.* "To have the restrictive effect urged . . . the rule would have to be explicitly worded in terms of "the *prior first* . . . use." (Emphasis supplied.)

The Commission also declared that the "Seven-Day Rule" allowed for sufficiently orderly planning by the broadcaster, supposedly fully effective in a two-candidate race, and "as a practical matter, [it] would appear to be effective in all races, since candidates usually desire time and do not let their Section 315 right depend on the action of their rivals."

Wrong. In little more than 19 months, *the FCC reversed its reasoning* and declared, "our further consideration of this problem leads us to the view that the [Seven-Day Rule] as presently written may well have an adverse effect upon the orderly planning of station activities in political broadcast situations."

The Commission has thus placed new emphasis on broadcasters' scheduling problems, recognizing that licensees should have specific knowledge about obligations under Section 315 within a reasonable time after opposing candidates have acquired rights to "equal opportunities."

No limitation has been placed on *when* a candidate must actually "use" his "equal time"—although timing clearly cannot be "unreasonable." The Commission has announced "we believe that the licensee should know of his Section 315 obligations not later than *seven days after they first arise.*"

Under this amendment to the "Seven-Day Rule," chain requests (contemplated in our situation above) would be eliminated. The FCC now recognizes that this problem is becoming increasingly significant, especially in view of the large number of multi-candidate races. In fact, where the "equal time" appearance of a second candidate (Candidate Y above) takes place shortly before election day, the broadcast licensee may be unable to accord "equal opportunities" to all other candidates (Candidate Z and others, *ad infinitum*) in the time remaining before the election.

To avoid this undesirable situation, the "Seven-Day Rule" *has now been amended to read as follows:*

> A request for equal opportunities must be submitted to the licensee within one week of the day on which the first prior use, giving rise to the

2. Letter to William S. Green, 15 FCC 2d 96, 14 RR 2d 544 (1968).

IN MAKING RECORDS STANTON IS THE STANDARD

Photographed at Capitol Records.

Whatever your requirements for recording and playback, Stanton's Series 681 cartridges are the calibration standard. And there is a 681 model engineered specifically for each of these critical applications.

The Stanton 681A—For Cutting Head Calibration

With Stanton's Model 681A, cutting heads can be accurately calibrated with the cartridge, for it has been primarily designed as a calibration standard in recording system checkouts for linearity and equalization. Frequency response is factory calibrated to the most rigid tolerances and the flattest possible response is assured for precise alignment of recording channels. Implicit in this kind of stability and constancy is a reliability factor unmatched by any other cartridge for this application.

The Stanton 681EE—For Critical Listening

In critical playback auditioning, whether a pre-production disc sample sounds too "dead" or "bright" is largely a matter of cartridge selection. Here too, Stanton provides the evaluation standard in its model 681EE. In this application, the Stanton 681EE offers the highest obtainable audio quality in the present state of the art. It is designed for low-distortion tracking with minimum stylus force, regardless of the recorded velocity or the distance of the groove from the disc center. High compliance, low mass and low pressure assure perfect safety even on irreplaceable records.

All Stanton Calibration Standard cartridges are guaranteed to meet the specifications with exacting limits. Their warranty comes packed with each unit —the calibration test results for that individual cartridge.

For complete information and specifications write Stanton Magnetics, Inc., Terminal Drive, Plainview, L.I., New York.

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right to equal opportunities, occurred; *Provided* however, that where the person was not a candidate at the time of such first prior use, he shall submit his request within one week of the first subsequent use after he has become a legally qualified candidate for the office in question.

The proviso in the amended rule means that any new candidate requesting equal opportunities could do so after he becomes a candidate and requests equal time within seven days of a subsequent use by his opponent.

The key words to the amendment are, of course, "the first prior use." These are precisely the words contemplated by the Commission in the 1968 situation noted above. By the addition of this term, chain requests for equal time have virtually been eliminated. The broadcaster may rest somewhat easier, now that he can expect to know (in almost every instance), within seven days of the first candidate's use of his facilities, how much "equal time" must be made available.

Conclusion

Consider the following hypothetical situations:

1) Candidate A, seeking a U.S. Senate seat, comes to your station and requests broadcast time to make a speech on his behalf. He offers to pay your rate card price. Must you make time available? *No,* as long as you have not made time available to other candidates for the same office. Remember, your station need not carry any political broadcast—but if you permit the use of your facilities by one candidate, you must afford equal opportunities to all candidates for *that* office during *that* campaign.

2) Suppose Candidate A buys time on your station and broadcasts a speech on August 1. Candidate B requests "equal time" on August 6 for a broadcast on August 15. Must you make time available to Candidate B? *Yes.* Under both the old Seven Day Rule and the new amended rule, B has filed a timely request for equal time.

3) Under the situation given in (2) above, suppose Candidate C then hears B's broadcast of August 15 and seven days later, on August 22, requests equal time. Is Candidate C entitled to equal time? *No.* The amended Seven-Day Rule, now in effect, eliminates this possible "chain" of requests. Candidate C (unless he had become a candidate after August 1, but before August 15, under the proviso of the Rule noted above) would be precluded from using your facilities by the way of a request for "equal time."

The Commission's amendment of the "Seven-Day Rule" permits easier scheduling and planning by the broadcaster. The licensee will now be able to ascertain the full scope of his equal time responsibilities within seven days after he first allows the use of his station by a candidate. The only exception, of course, would occur if a new candidate qualifies after the first use of the facility.

Election time is generally a lucrative period for broadcasters with sizable "off-the-rate-card" purchases, prepaid. The FCC's elimination of those possible chain requests (arising under its old rules) now enables the broadcaster to plan his schedule well in advance. **BM/E**

One show's panel: Rudolf Steiner, Margaret Truman, Rev. Dana F. Kennedy, host Bill Bertenshaw. Producer is Daniel Frercks.

"SUGGESTED SOLUTIONS"

A Social and Political Blueprint Now on 441 RADIO STATIONS

"SUGGESTED SOLUTIONS," the widely-discussed nationally broadcast Panel Show, based on the writings of Rudolf Steiner, has become the "Talk Show of the Nation."

Premiered August 3, 1969 on New York's WPIX-FM, it was picked up October 5, 1969 by the Mutual Broadcasting System. Following an announcement of its availability in a feature news story in *BM/E*, it expanded to national coverage from coast to coast in the United States as well as Canada, the Carribean, Europe and Australia.

The Producer and Host of the Show, Bill Bertenshaw, has won several national awards for his imaginative, creative productions in the area of public service programming. Panelists on "Suggested Solutions" include prominent clergymen, economists, foreign and domestic reporters.

Some of the topics are: The possible recovery of our society . . . new crime deterrents . . . licensed authors . . . selective propogation . . . drugs for 50¢ . . . new means of transportation including fare-free mini-busses . . . room pollution . . . automatic and cost-free divorces . . . war prevention through "spheres of influence" . . . races have ages . . . segregation and integration can co-exist . . . automation and the coming age of idleness . . . welfare settlements outside of the cities . . . the misleading promises of education . . . performers and spectators . . . the role of the Army and the Red Cross in domestic disaster areas . . . unions, prosperity and purchasing power . . . replacement of the Income Tax by a graduated Turnover Tax . . . merger of the Senate and House of Representatives . . . new ground rules for Presidential elections . . . graduated voting rights (from 1 to 24 votes) . . . ultimate goals of our society.

Bill Bertenshaw informs us that "Suggested Solutions" is available 52 weeks yearly on both mono and stereo tapes. The mono version is available for $3.00 weekly and the stereo version for $5.00 weekly. (Minimum order 4 weeks.) Each broadcast runs 24:00 minutes. "Suggested Solutions" can be ordered from Radio & TV Roundup Productions, 111 Maplewood Avenue, Maplewood, New Jersey 07040.

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"The TK-44A makes very sharp pictures. Reaction to a recent live ball game was 'It's the finest video ever seen.'"

—LeRoy Bellwood, Director of Engineering
KOGO-TV, San Diego, California
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"The camera has met with excellent reaction from viewers and sponsors...No question whatsoever—it beats the daylights out of other cameras. Sharpness of picture, by the enhancer...means another generation of quality tapes."

—Wayne Barrington, Chief Engineer
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"...picture quality is outstanding... Quality pictures one minute after turn on."

—Eugene R. Hill, Vice-President, Engineering
Kaiser Broadcasting Corp.
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"Many people have remarked how much better our pictures look. Not simply the color, but how much sharper. It's a better picture."

—C. E. Miller,
V.P., Engineering
Fisher's Blend Station, Inc.
KOMO-TV. Seattle, Washington

"Our folks like the way the picture looks and the way the camera handles...We get requests to go on location...agencies from out of town come to us...We are doing a lot of this work."

—Rupert Bogan, Director of Engineering
Carter Publications, Inc.
WBAP-TV, Fort Worth, Texas

"We have been impressed with the construction, the dependability and the quality of pictures...The pictures are great and the lack of noise in the black is beyond belief."

—Vincent E. Clayton, Director of Engineering
Bonneville International Corporation
KSL-TV, Salt Lake City, Utah

"They have been used with as little as 25 foot candles of light...and give us noise free color pictures...We have worked with all other makes and models of cameras, but none compare to the TK-44A."

—Larry R. Eskridge, Chief Engineer
WTOG-TV, St. Petersburg, Florida

Thank you, gentlemen.

RCA

There is A Monitor Problem

By J. Grayson Jones

You may not be able to beat the game of matching monitors but here are six tips if you try.

STANDARD VIDEO MONITORS are a prime necessity in producing good uniform color programs. FCC standards for TV colorimetry are specified in monitor terms: the equations for formation of the signal are specified; the colors of the three primary lights (phosphor colors) are specified; the color of neutral white (Illuminant C) is specified. From this, the camera characteristics and the rest of the system parameters are derived.

Monitors are used at every place in the broadcasting sequence where the signal can in any way

J. Grayson Jones, is the Director of Advanced Development, CONRAC Corporation. He is chairman of the SMPTE television monitor sub-committee and is working in the EIA towards setting up a new sub-committee dealing exclusively with video monitors.

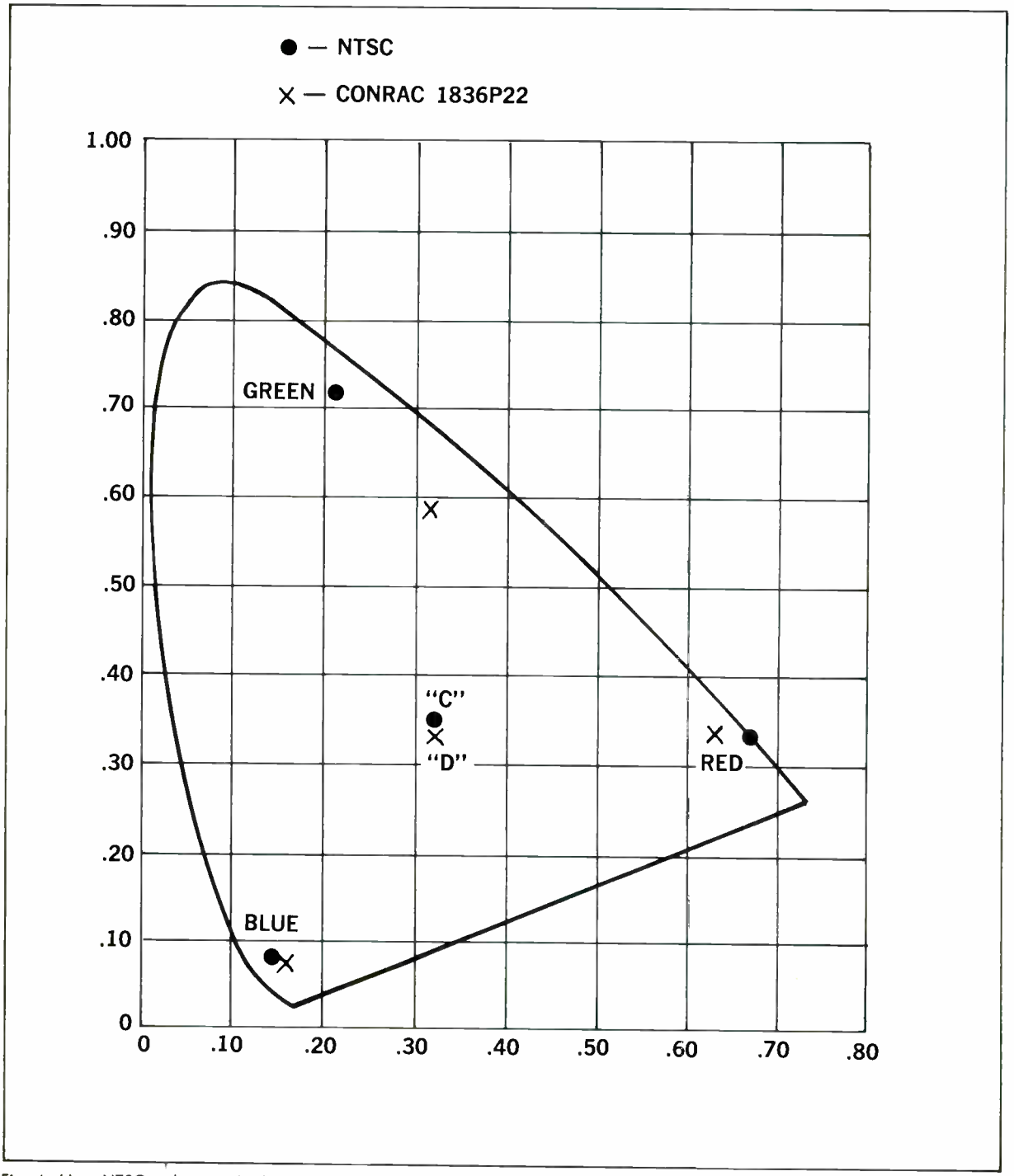


Fig. 1. How NTSC color standard compares with actual color of most commonly used monitor. *D* illuminant is close to C.

be affected—in live production studios, in the tape and telecine rooms, at switchers, during signal processing, prior to microwave transmission, between the microwave receiver and the input to the television transmitter, at every step where the color video signal might be altered or degraded. If there exists a monitor problem, by definition there exists a color problem. And a monitor problem exists.

So what do we do about it?

First, let's identify it. In actual fact, to start with, professional color monitors do not conform to the established standards. They generally do employ a standard NTSC matrix and are usually adjusted to Illuminant C (or Illuminant D 6500, which is quite close and much more practical to generate), but the practical phosphors used in modern picture tubes do not produce the colors originally specified by the NTSC. Therefore, color rendition on the monitor is not exactly correct. Fig. 1. illustrates the NTSC standards versus the actual colors supplied by the most commonly used professional monitor kinescope.

This part of the situation is not as bad as it seems. A human observer has a very poor memory for shades of color and unless he can directly compare the original scene with the monitor picture, small errors in color are not detected. The human eyeball, however, is a fantastically sensitive instrument for detecting small differences in color when presented side by side or in rapid sequence, as occurs in television when switching between program sources.

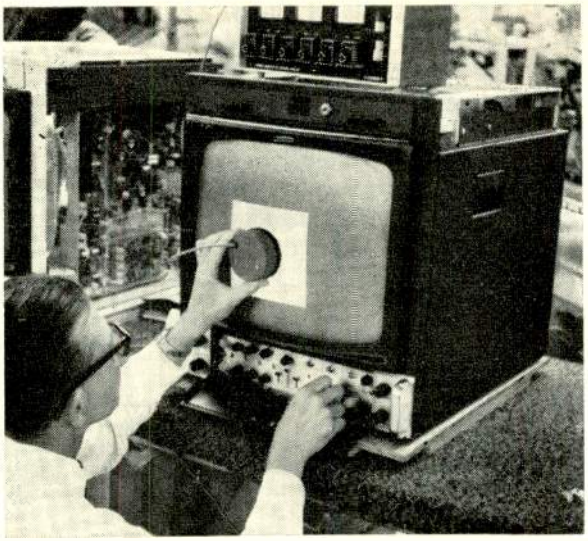
So, the matter of providing a more uniform product becomes far more important than the matter of exact colorimetric rendition. In order to produce a more uniform product, broadcasters must have monitors which are matched to near perfection. Exact color rendition is important, and new phosphors have been and will continue to be developed. But rendition, as a current practical matter, is not nearly as important as uniformity. Ideally, all production center monitors in the country should be matched to each other to facilitate network switching, tape exchanging and editing.

There are several committees, sponsored by the SMPTE and EIA, now working in this area with the objective of improving both the colorimetric rendition and the uniformity of product. It is expected that new standards will be proposed and recommended practices issued which will go a long way toward eliminating the present chaotic conditions.

Unconditional Conditions

Matching for two monitors requires the following conditions: The electrical signals applied to the picture tube must conform to the same standards; the brightness and color of neutral white must be exactly the same; the black level must be accurately set. This further assumes that the picture tubes have identical phosphors.

Additionally, the viewing conditions should be the same. While no standards currently exist, there



Grayson Jones using a Gardner Colorgard (available from Television Equipment Associates) to calibrate a Conrac model RHA19 color monitor showing a window pattern.

seems to be general agreement that monitors should have a neutral surround and the lighting should be controlled to produce a color approximating Illuminant D 6500 and at a level of 2 or 3 footlamberts. A number of networks and stations have worked on this and have discovered it is effective at a not-necessarily high cost. An SMPTE sub-committee is currently drafting recommendations for standard viewing conditions. (See article on page 25 for new Eastman-Kodak recommendations.)

In the early days of color broadcasting, there were problems with the electrical adjustments of the decoder circuits, both in obtaining accurate decoding and with drift or adjustments once they were set. These particular problems have been virtually eliminated in modern solid-state professional video monitors.

The decoder circuitry can be adjusted objectively using the standard color bar test signal and an oscilliscope. The scope is connected to the output of the blue video channel and the chroma gain and phase controls are adjusted so that all bars which contain blue are 100 percent and all bars which do not contain blue are zero. Similarly, the red and green channels may be observed separately, and any internal adjustments, such as Quadrature and Gain Balance, may be made. A skilled observer can dispense with the oscilloscope and make the adjustments by observing the picture tube with only one gun turned on at a time. Once set correctly, the adjustments will hold for long periods of time.

How to Get Neutral White

The most critical factor in setting up monitors is that of obtaining a correct value for neutral white. This requires a stable, accurate, reference white light. While the NTSC originally specified Illuminant C, Illuminant D 6500 is actually and currently preferred in the USA, Canada and Eu-

rope. This primarily is because D 6500 can be generated by a simple lamp and filter whereas Illuminant C is very difficult to generate, even in a laboratory. Illuminant D 6500 is entirely satisfactory.

There are several light sources available for the purpose of arriving at a correct neutral white.[1] Typically, they are arranged so that the operator sees the picture tube screen in half of the field and the standard Illuminant D light as a specified brightness in the other half (typically 20 footlamberts for highlights and 1 or 2 footlamberts for dimly lit pictures.) An operator adjusts the monitor controls until the picture tube matches the standard—a tedious and exacting job which normally takes about one-half hour of repeated trials. A properly set monitor may then be treated as a master monitor.

Once the master has been set for neutral white, a number of transfer instruments are available[2] to speed readjusting this master monitor or to set up other monitors. The transfer instrument must first be calibrated to the monitor which has been set up correctly. Once calibrated, it can then be used to accurately and rapidly readjust this same monitor, electronically, without having to rely on operator judgment. The setup can be done in less than five minutes. The instrument can also be used to set up other monitors at the same calibration settings, provided all monitors are alike and, in particular, have the same picture tube phosphors. Experiments have demonstrated that several monitors set up by different people using these techniques do indeed match.

1. Light sources are supplied by IRT (Hellige), Graphicon, CDL and others.
2. EG&G Colorcomp, Gardner Colorgard, Minolta and others.

Humans Add to the Problem

There are human problems involved which are more difficult to solve. A neutral white cannot be obtained by an operator without normal tri-color vision and vision tests should be made to select personnel. Additionally, attempts to short-cut setup can cause problems—adjusting to flesh tones without reference to neutral white or color bars, which is common, supplies a beautiful picture at the moment perhaps, but the procedure may well guarantee tremendous color problems on the next shot with a different color balance.

The complaint of picture drift is often a humanly-caused phenomenon. A picture tube does have temperature drift. Since the gun and shadow-mask operate in a vacuum, it is not surprising that it takes a period of time for temperatures to stabilize. At least an hour's warm-up should be allowed before setting up or using a color monitor. During warm-up, a blank white raster or normal program material should be displayed, not a stationary test pattern which tends to produce local heating and which may burn a pattern into the screen. If a monitor is set up immediately after turn-on, without the temperature stabilizing wait period, color drift is guaranteed. An SMPTE subcommittee is currently working out a recommended practice for setting-up monitors.

Phosphor Variations Make Matching Impossible

Many of the problems in matching monitors stem from the variation in phosphors. During the evolution of the picture tube, several dozen dif-

Continued on page 52

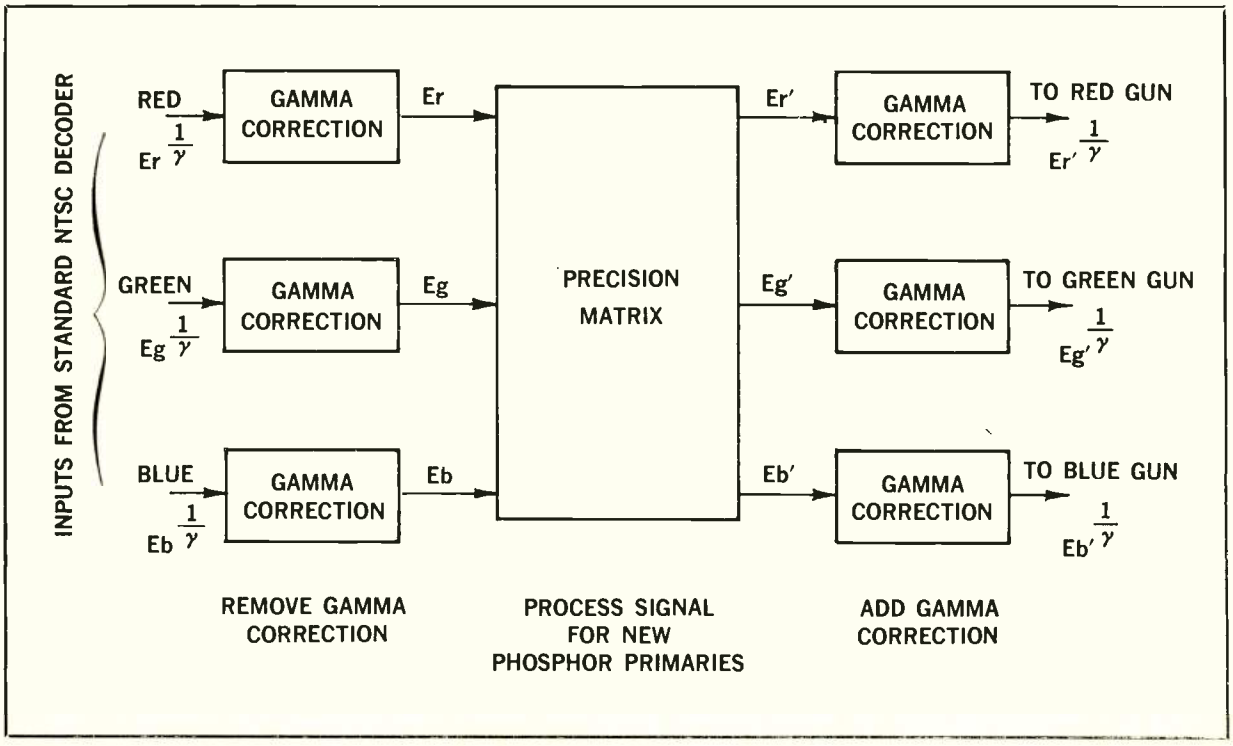


Fig. 2. Possible method for compensating for non-standard phosphors.

Better Color: It's on the Way

Off-color commercial films have plagued TV for several years. Now the knowledge of what goes wrong has been accumulated; it's just a matter of spreading the word.

COLOR TV HAS COME a long way since the "spinning wheel in the parlor" of 1951. Most of the off-color discrepancies have been cleaned up, and it's now possible to get good color from live cameras, video tape, and feature films.

But during the past two years the bugaboo has been film commercials. They've all been NTSC—No Two the Same Color. While everybody deplored the situation, a few hard-working men started solving the problem. Various SMPTE people have gathered data and made recommendations. A major film supplier—Eastman Kodak—has begun a strong program to better color quality. What are the steps to good film commercials?

- Proper viewing conditions
- A standard monitor setup procedure
- A new telecine test slide and setup
- Uniform film processing
- Educating film producers and agencies

Viewing Conditions

Perhaps the biggest problem in color TV is that the ultimate verdict of whether the reproduced color is good or bad is a subjective one. You can measure color with a vectorscope, but the real judge is still the human eye. One part of the solution is standardizing picture-tube phosphors, and setting up and matching all station monitors to the same standard. (See "There is a Monitor Problem," on page 22 of this issue.)

Aligning monitors is only part of the solution, however. They must be observed under identical and proper viewing conditions. If one monitor is under fluorescent light and another under incandescent, the color will be different. If a color monitor is next to a black-and-white model, there'll be a noticeable difference in the white each displays: A color monitor shows a pinkish white, while a B&W model shows a bluish white.

Film Preview Room

Screening films on a telecine chain would be the ultimate test, but that ties up a vidicon camera, perhaps an entire projector island, just to preview films. Too expensive! Much more practical is a projector, screen, and room which display a picture that closely matches the image shown on home receivers.

Research has been done on film preview rooms by Eastman Kodak and the Canadian Broadcasting Corporation. In fact, the CBC has standardized its preview facilities. In England, the BBC is doing the same.

The screen in such a room is similar in size and shape to a TV monitor. For a small audience —one to four viewers—the screen is about the

What's Chromabeam?

Shown at the NAB in April, Chromabeam is 3M's new system for electronically transferring color video to high-quality film which can be shown on any 16-mm sound projector.

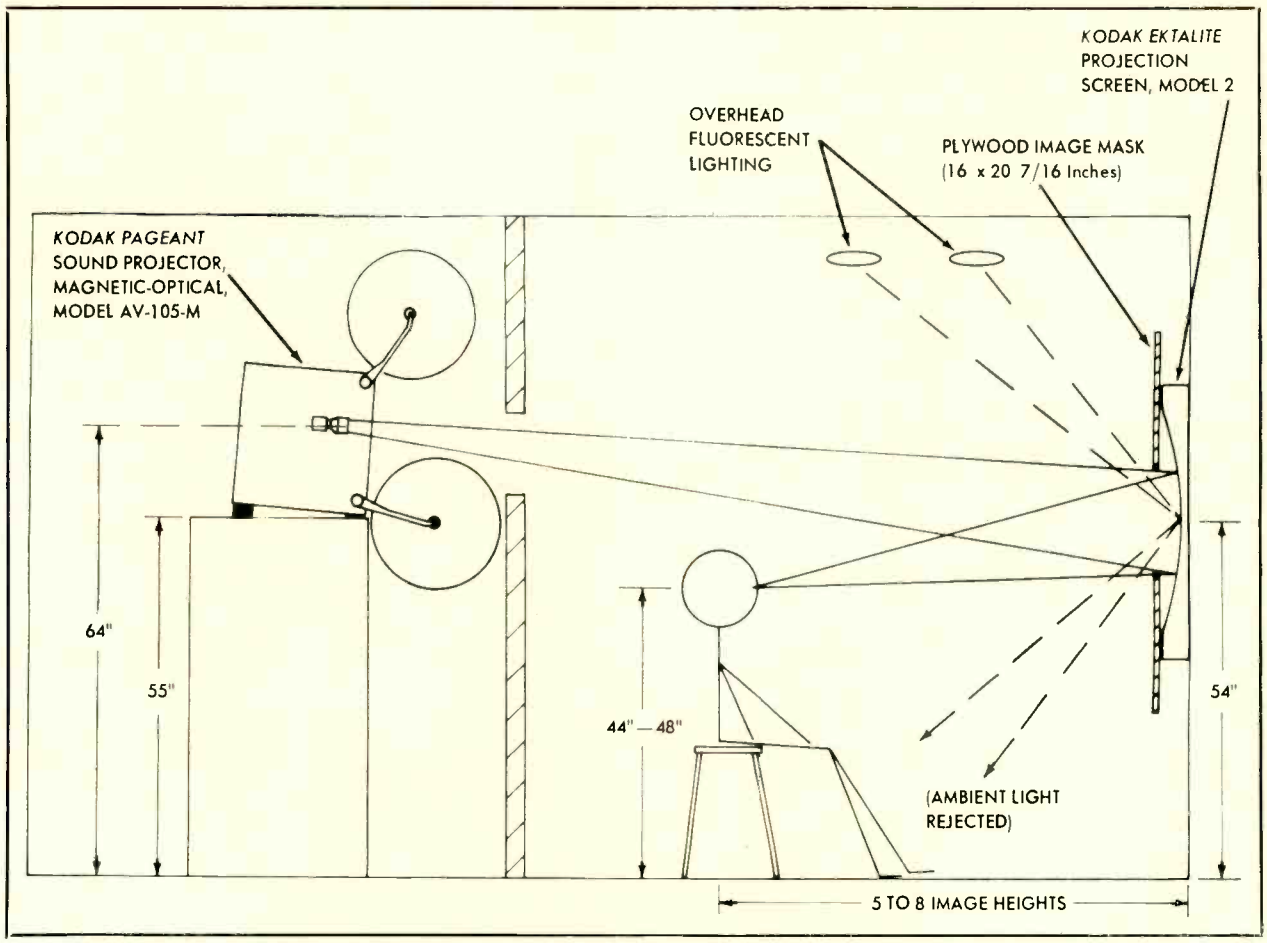
Heart of the system is an EBR (electron beam recorder) which records video information line by line directly on film by varying the intensity of an electron beam. While EBR does the job of the now-obsolete kinescope recorder, it avoids the distortion produced by optically copying images from a CRT.

Color video (either from a live camera or a VTR) is decoded into separate red, green, and blue components. These components are then recorded on standard black and white low-cost film in a special color sequence. This separation film is then developed and run through a Chromabeam printer. Color filters recombine the separate color images and slow-speed, fine-grain, low-cost film is exposed to the composite color image. The color film is then processed conventionally.

The original separation recording may be done either as a negative or positive, and the color print may be a positive for direct playback, or an internegative for printing multiple copies.

3M expects to deliver first units in mid-1971, with a price of about $100,000. The company claims color registration and quality comparable with original live or taped material. Additional advantages:

- Separation images allow independent control in printing all three colors, thus automatically providing optimum color balance and purity.
- Because all separation images are on the same film, there's no indexing problem in printing, and any film shrinkage tends to be equal on all three colors.
- Master black and white recording may be safely stored for reference, because it isn't subject to color dye fading.
- The separation master may be edited without upsetting color sequence by removing any multiple of five fields.



This film preview room is suggested by Eastman Kodak, and could help produce better color films if adopted by most film users.

size of 25-inch monitor, or 16 × 20-7/16 inches. For a larger audience, it should be proportionally larger. The sketch above shows the room's physical layout.

The preview projector should have a color temperature of 5400 K, ± 400 K, to simulate the color temperature of a monitor.

Around the screen, the viewing wall should be painted flat light gray. The side walls, floor, and ceiling should be painted flat medium gray. The wall behind the audience should be flat black.

When the projector is turned on without film in the gate, screen luminance should be about 40 footlamberts. The average film will reduce this value to about 20 ft-L, which corresponds closely to the white level of TV monitors.

Specific Preview Equipment

Eastman recommends its Ektalite projection screen (40 × 40 inches) for two reasons. First, the screen is directionally selective and rejects light originating outside the viewing area. Thus, no special masking or hooding against ambient light is required. Second, under the recommended conditions, a darkened Ektalite screen has a black level equivalent to that of a dark TV monitor.

A screen mask should be made of ¼-inch plywood. The mask should be painted flat black on the screen side, on the front side a 2-inch black border around the screen cutout should also be painted flat black. The remainder of the mask front should be painted flat light gray.

Projectors and Lenses

Eastman recommends its Pageant sound projector, magnetic-optical, model AV-105-M, but cautions that its sound reproduction characteristics should be modified to match the system used in TV film projectors.

The company also recommends the Ektanar projection lens, 2-inch f/1.6, for use with the AV-105-M projector. The shutter should be locked in the three-blade position. And be sure that the projected image overlaps the screen mask slightly.

The projection lamp should be an ANSI Code CXY model, which is rated at 300 watts and 25 hours. Full-voltage operation is mandatory, for if you reduce filament voltage you will cause undesirable color temperature shift.

Finally, a Corning No. 5900 filter, 4 mm thick, should be used to produce the recommended color temperature of 5400 K ± 400 K. To mount it on the lens mentioned above, a Kodak Series 6 filter adapter will be needed.

Room Lighting

In the preview room, use fluorescent lamps which produce illumination with a color temperature of 5500 K. Examples are General Electric F40-C55 and Durotest Optima Full-Spectrum Lamps. Install the lamps in overhead fixtures and wire them with a rheostat so the viewing-wall luminance can be adjusted to a value of 3 ft-L. The best way to check this is with a light meter calibrated in footlamberts.

Telecine Variations

Studio color cameras are normally matched before a broadcast or taping session. That task is relatively easy, since all cameras can focus on the same human model and the video operator can tweak knobs until the cameras look the same on the monitor.

Similarly, an accurate reference for video tape is the segment of color bars which goes on the headend when the tape is recorded.

But the colorimetry of U.S. vidicon film cameras isn't standardized, and practically every chain has a different color. There are no standards, for instance, on gamma and tracking. (Because they can control every facility, CBC people are able to standardize their telecine and match colorimetry.) Furthermore, it's not easy to match several film chains, as you can't focus them all on the same live model.

One possible solution is a color reference slide developed by Eastman Kodak. It's made of evaporated metal, not dyes, and thus won't show color shift with age. The slide fits into the field lens position of the optical multiplexer in the telecine chain. You use it to tweak each camera into reference, with the result that all produce the same color.

To distribute the slide and explain its use, Eastman is sending a team of engineers around the country from station to station. That effort can't help but be beneficial to TV.

Film Processing

One variable that may soon be eliminated is the color temperature at which films are processed. In the past, 16-mm film has been processed at 3200 K, and projectors have used tungsten lamps. But many TV stations use the SMPTE 35-mm color slide to balance their telecine equipment, and that slide is timed for 5400 K, the 35-mm standard.

At the April SMPTE conference in Chicago, E. C. Genock of Eastman Kodak recommended adopting 5400 K for 16-mm use, along with xenon or arc lamps in projectors. He said the three TV networks, the Film Producers Association, and the American Association of Advertising Agencies had agreed to start ordering 16-mm prints at 5400 K beginning June 15. Many 16-mm prints are reduced from 35, and using the same color temperature for both would better the end result.

Eastman's Dan Zwick, who also spoke at the Chicago SMPTE meet, thinks most variations in color film prints are caused by differences in viewing conditions at the point of approval—the ad agency viewing room. A similar opinion was voiced at Chicago by Young & Rubicam's Carl Sturges.

Actually, variations between the answer print (which is approved by the ad agency or client), and the resultant release prints, are small. The real problem is between one family of release prints (for sponsor A) and another family (for sponsor B). The only solution for that problem is standardized film preview rooms for agencies and production houses.

Also at SMPTE Chicago, Fred Scobey of Deluxe General Inc. urged careful production of original negatives. He warned against over-reliance on the processing lab to correct shooting mistakes.

Education at Input

A program to educate film producers and ad agencies began with a video taped seminar at the Chicago SMPTE. A joint effort of the networks, Eastman and several agencies, the program is currently being given in New York, with the idea of moving to other major cities in the coming months. The seminar explains in detail the points covered

Continued on page 54

VIR Signals Tested

Promising better color uniformity on home receivers, proposed VIR (vertical interval reference) signals are currently being on-air field-tested in New York by the three networks. The signals, which were developed by the EIA's Broadcast Television Systems Committee, will provide stations with a constant color reference. They provide a means for determining that the chrominance-to-luminance ratio is correct, and that the color burst represents a proper reference for both phase and amplitude of the chroma signal.

The tentative VIR signal contains chrominance, luminance, and black-level references, and is proposed for line 20 during the vertical sync interval, just above the top of the picture.

The committee is also considering whether any changes in TV specifications are appropriate to improve color uniformity. Possible changes involve sync and burst timing tolerance, and specs for gamma, primaries, and reference white.

Detroit: Nation's Most Saturated Radio Market

By Arthur R. Vuolo, Jr.

Southeastern Michigan is probably the only place in America where radio signals occupy more space than birds, bees, planes, and pollution. Almost every AM, FM, and TV frequency has either been used, allocated, or reserved by the FCC. Here is a close look at the various radio formats used by area stations, and their degrees of success.

ODDLY ENOUGH, DETROIT—the nation's fifth radio market and the nucleus of Southeastern Michigan —has more FM than AM stations licensed to the city proper. Yet, AM radio does over five times the national and local business in the metro area.

The suburban stations cannot be overlooked, for often they do better than those in the city. According to a Detroit Hooper rating last spring, the top-rated syrup, soul, and rock stations were licensed to communities outside the Motor City. The honors went to Monroe, suburban Inkster, and Windsor, Ontario (Canada). WKNR (Dearborn) managed to become Detroit's No. 1 station in 1964—even with a nighttime pattern so directional that less than a 0.3-mV signal falls over downtown Detroit after sundown.

Top-Rated Stations

Program doctor Bill Drake's "Much More Music" philosophy is still winning in all of Southeastern Michigan. CKLW shows up No. 1 in Detroit, and in every significant community within a 40-mile radius. It's the No. 2 rocker in Toledo, No. 3 in Cleveland, and even shows up in daytime ratings as far away as Erie, Pennsylvania! In Ann Arbor, home of the University of Michigan, CKLW captured 30% of the audience (October-November 1969 Pulse for Ann Arbor). All three Ann Arbor stations had a combined rating of about half that figure.

WJR, affectionately known as the "Good Will Station," also wins through consistency. However, the approach of this 50-kW clear-channel operation is somewhat different. Programming is semi-block, and resembles 1940, but sales and ratings prove that style of radio apparently still very popular.

Detroit is an unusual radio market. Despite its population (over two million) it still has no all-news station, no all-ethnic station. Furthermore, at the beginning of 1970, the only all-talk station (WTAK) changed call letters to WIID, dropped the conversation, and adopted a format of MOR music. The station is currently doing a lot of promotion.

FM Action

In spite of receiver penetration of 81%, FM has never really blossomed in Detroit. WHFI (suburban Birmingham) tried creating FM excitement by hiring several popular ex-AM personalities. Three well-known Detroit DJs went to work at WHFI and people were starting to talk; some even started switching their sets to FM. Although the station has been on the air since 1958, many people didn't realize it even existed. WHFI's music is chicken rock and the personalities are exactly that —personalities. The only time the music mood is altered is between midnight and six a.m., when Ira J. Cook, a creative all-nighter, features slightly heavier music and an extra-strong dose of entertainment.

The most recent FM excitement was created by Gordon McLendon's wwww, known as W/4. On March 10, 1970, the syrup was dropped from this stereo operation and a 24-hour diet of 1950s and 1960s oldies began. The results were dramatic: Within three weeks W/4 was the No. 1 FM station in Detroit, and ranked higher than six other metro area AM stations! General manager Don Barrett was pleasantly surprised by the almost instant

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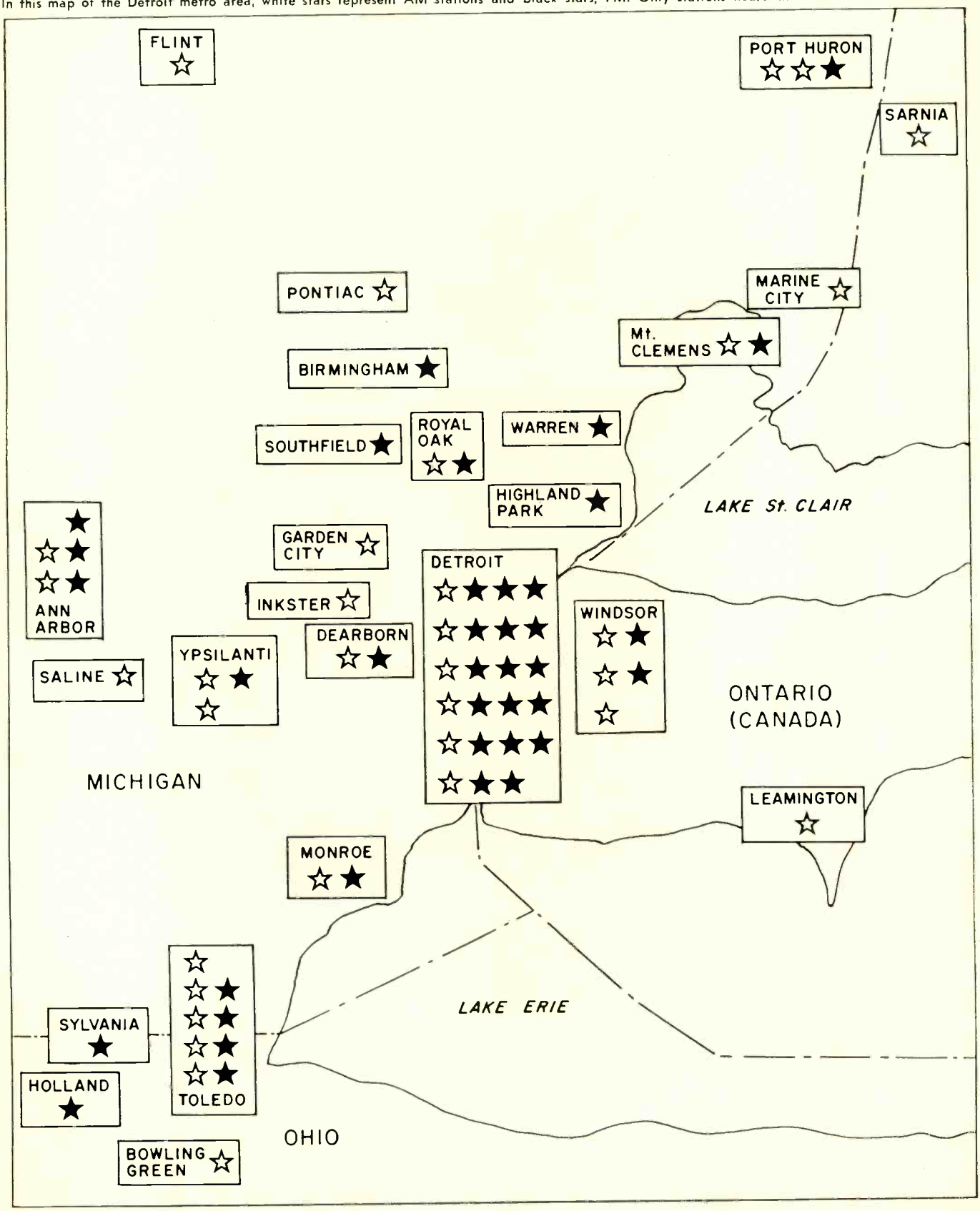
In this map of the Detroit metro area, white stars represent AM stations and black stars, FM. Only stations heard in Detroit were counted.



success. DJ Tom Michaels surpassed his own previous rating. Michaels has worked for WCAR, a 50-kW AM station, and in last spring's rating his evening program on W/4 outrated the same time slot he had held at WCAR! (Detroit metro area Hooper Rating, March-April 1970) Tony Ryan, W/4's under-21 morning personality, has a delivery so smooth you'd think he's been in radio for 20 years. W/4 seems to have hit Detroit like WOR-FM has done New York. The format is heavy, but not overweight.

Good Music

Pancake restaurants should do well in the Detroit area because (pardon the pun) there's a large supply of syrup on the FM dial. WLDM is the oldest, dating back to the 1940s; it's popular in doctors' offices. WOMC is the top syrup supplier on FM. Its high popularity can probably be attributed to the fact that the average hour of music is interrupted only four times for commercials. The 214-kW signal doesn't hurt either. WJR-FM automatically extro's each selection, and CKWW-FM runs an almost 50/50 ratio of vocals to instrumentals. WMZK (MuZaK) is a mono automation rack, while WWJ-FM has an engineer running "Segue Serenade" all day. The top syrup outlet, however, is not in stereo. In fact, it's not even on the FM band. And if that's not enough—it's not even in Detroit! WQTE, a daytimer in Monroe (about 25 miles south of the Motor City) is dominantly the top good-music station in all of Southeastern Michigan. It uses only 500 watts—but at the low frequency of 560 kHz, thereby putting out a strong signal.

Competition from outside this metro area is varied. WCWA-FM (Toledo) claims listeners in the southern and western Detroit suburbs, as does WSPD-FM (also Toledo). WGER-FM, a high-power syrup station in Bay City, 120 miles northwest of Detroit, blankets a large portion of this area.

Soul, C&W

Soul-music lovers support WCHB, in the western suburb of Inkster, while Detroit-based WJLB checks in at a close No. 2. WKLR-FM, KooLo-Radio 99," is tops in Toledo for soul, and swings its power up into parts of the Detroit area. Jazz and blues buffs groove to WCHD-FM and WGPR-FM in Detroit.

The country-and-western market is thriving in Detroit. WEXL (Royal Oak) has been the top C&W station for years, in fact since 1938, and still enjoys lots of loyal country fans. However, recently Storer's 50-kW WDEE (ex-WJBK) has outrated WEXL. Modern country music is the key to Big D's success, mixed with mass-appeal contests, promotions, and listenable DJs. The closest suburban competition comes from WSDS. At 1480 kHz, it almost rubs noses with the Big D, at 1500. WSDS is a popular modern country station in Ypsilanti, showing up with a large slice of the

Detroit Metro Area Radio Formats

Hot 100 Rock

CKLW	Windsor, Ont.
WKNR	Dearborn
WWWW-FM*	Detroit
CHYR	Leamington, Ont.
WKNR-FM	Dearborn
CKLW-FM	Windsor, Ont.
WTAC	Flint
WNRS	Saline
WNRZ-FM*	Ann Arbor
WOHO	Toledo, Ohio
WPAG	Ann Arbor
WPAG-FM	Ann Arbor
WTTO	Toledo, Ohio

Progressive Rock

WABX-FM*	Detroit
WKNR-FM	Dearborn
WXYZ-FM*	Detroit
WNRZ-FM*	Ann Arbor
WPAG-FM	Ann Arbor

Chicken Rock

WXYZ	Detroit
WCAR	Detroit
WHFI-FM*	Birmingham (Detroit)
WPAG	Ann Arbor
CHOK	Sarnia, Ont.
WHMI	Howell

Old Rock

WWWW-FM*	Detroit

Country & Western

WDEE	Detroit
WEXL	Royal Oak
WSDS	Ypsilanti
WDEE-FM*	Detroit
WSMA	Marine City
WTOD	Toledo, Ohio
WVMO-FM	Monroe
WGLN-FM	Sylvania, Ohio (Toledo)
WMGS	Bowling Green, Ohio

Syrup (Good Music)

WQTE	Monroe
WOMC-FM*	Detroit
WLDM-FM	Detroit
WJR-FM*	Detroit
WMZK-FM	Detroit
CKWW-FM*	Windsor, Ont.
WWJ-FM	Detroit
WCWA-FM*	Toledo, Ohio
WSPD-FM*	Toledo, Ohio
WGER-FM*	Bay City
WHLS-FM	Port Huron
WMHE-FM*	Toledo, Ohio

Soul-Blues-Jazz

WCHB	Inkster
WJLB	Detroit
WCHD-FM	Detroit
WGPR-FM*	Detroit
WKLR-FM	Toledo, Ohio
WMHE-FM*	Toledo, Ohio

Gospel & Religion

WBFG-FM*	Detroit
WMUZ-FM	Detroit
WBRB-FM	Mt. Clemens
WYNZ	Ypsilanti
WPOS-FM	Holland, Ohio (Toledo)

Classical

WQRS-FM*	Detroit
WDET-FM*	Detroit
WUOM-FM	Ann Arbor
CKLW-FM	Windsor, Ont.
WEMU-FM	Ypsilanti

Middle of Road

WJR	Detroit
WWJ	Detroit
CKWW	Windsor, Ont.
CFCO	Chatham, Ont.
WCAR-FM	Detroit
WIID	Garden City
WAAM	Ann Arbor
WPON	Pontiac
WBRB	Mt. Clemens
WSPD	Toledo, Ohio
CBE	Windsor, Ont.
WCWA	Toledo, Ohio
WHLS	Port Huron
WVMO-FM	Monroe
WPHM	Port Huron
WRWR	Port Clinton, Ohio

Educational

WUOM-FM	U. of Mich.
WDET-FM	Wayne State U.
WDTR-FM	Detroit Bd. of Ed.
WSHJ-FM	Southfield H.S.
WKAR-FM	Mich. State U.
WPHS-FM	Warren Schools
WHPR-FM	Highland Pk. Schools
WEMU-FM	Eastern Mich. U.
WOAK-FM	Royal Oak Schools

All Talk
No Stations

All News
No Stations

Notes:
*Stereo.

Stations are listed in order of general popularity based on recent Hooper and Pulse data. There is no all-ethnic station in market, but several stations program limited hours weekly. Some stations employ more than one format at different times.

audience in many of Detroit's western suburbs. WTOD (Toledo), a one-time top rocker in that city, is doing very well with country music, and covers a healthy chunk of Southeastern Michigan with 5000 watts on 1560.

More Rock

Chicken rock for the Tom Jones-yes, Rolling Stones-no crowd is very popular, and WXYZ leads the way. With personalities like zany Dick Purtan in the morning and smooth Tom Shannon in the afternoon, WXYZ blends a hard-to-top combination of music and news. WCAR is on Top 40's doorstep, but never offends with anything too heavy or out of context. (The call is pronounced "W-car," referring to Detroit's most famous product.)

Underground radio, featuring progressive rock, is well represented in this area. WABX (FM) is the leader: It originated the format in Detroit, and still holds the top position. The personalities, like Dave Dixon and Larry Miller, have a loyal following. The music is heavy, the approach subtle, and sales are up. WKNR-FM (Dearborn) is similar, and with 50 kW, draws a large regional audience. WXYZ-FM offers the ABC "Love" format, with Brother John taped from New York on a 50/50 basis with local live programming. Wayne State U's WDET-FM experimented with progressive rock but discontinued it late in May.

There's an unbelievable amount of religion on the local dial, both AM and FM. WBFG, which creatively stands for We Broadcast for God, is a 24-hour source of gospel music and inspirational readings. WMUZ-FM, with a solid 115 kW offers a similar service to the community. WYNZ is an AM station in Ypsilanti which provides religious programming for the non-FM audience in the western suburbs.

Close behind WJR, the top MOR outlet, is WWJ, acclaimed by non-KDKA fans as the world's first radio station. WCAR-FM is a surprisingly popular MOR station, and CFCO (Chatham, Ont.) with 10 kW, puts a solid 0.5 mV of MOR over the entire area.

College Radio

Education is all over the FM dial. The University of Michigan's WUOM, Wayne State's WDET, Eastern Michigan University's WEMU, and even Michigan State's WKAR, cover most of the Southeastern Michigan area. Southfield High School offers MOR music and athletic events coverage on WSHJ, which is actually operated by students. The only classical music station not affiliated with a school or university is Detroit's WQRS-FM. This 50-kW stereo station offers a schedule of approximately 95% classical and 5% folk music.

CKLW is No. 1, but not the only choice on the dial for Hot-100 rock. WKNR (KeeNeR 13) is still quite popular. Recently the station has undergone several alterations. A couple of former DJs have returned, a new jingle package was incorporated and the sound was tightened up considerably. W/4 mixes current hits with the oldies. At Leamington, Ont., Cheer Radio (CHYR days, CHIR nights) socks out the hits around the clock. WTAC covers many listeners from Flint, 60 miles to the northwest. At 600 kHz, this 1000-watt station covers 14 counties! WOHO, the top rocker in Toledo, draws listeners in Monroe and even in some areas of downriver Detroit (southern suburbia). WTTO (also Toledo) doesn't serve the Detroit metro area during the day because of a null northward. At night, however, the pattern is reversed.

Ed. Note: Material in this article was compiled up to May 10, 1970. Opinions expressed herein are those of Arthur R. Vuolo, Jr., and do not necessarily represent the viewpoint of BM/E magazine.

Rich in Money, Short on Radio

The strangest market in Southeastern Michigan is Ann Arbor, 40 miles west of Detroit. A fast growing community, soon to be wired for cable TV, Ann Arbor has a highly educated university-influenced population of over 100,000, with an average per-household income of $14,500. But that's not all. Ann Arbor also has a radio problem. There are three local stations, yet CKLW walks away with nearly 85% of the under-25 market! Ann Arbor's population is 51% under 25, including U. of M. students.

WAAM is the only fulltime AM station in Ann Arbor, and stresses local news and sports. The format is MOR and, primarily because of a very efficient news department, the station ranks above its two local competitors.

WPAG will probably never shed its image of a farm station, but isn't really worried. Farm director Howard Heeth has, for 25 years, enjoyed high billings with his "Farm and Home Hour" program. The format is light chicken rock until sunset. Then, on FM only, progressive rock, blues, and folk are offered.

WNRZ (FM), licensed to Ann Arbor, and sister WRNS in Saline, eight miles southwest, are creatively known as "The Winners." WNRS/WNRZ program Hot-100 rock, with the flavoring of progressive rock, 24 hours a day. With personalities like Tommy Vance, Jim Curtiss, and Mike O'Brien, "Winners" draw a lot of young listeners, but overcoming CKLW's 50-kW signal is a tall order.

Port Huron, 45 miles north of Detroit, has two stations: WHLS and WPHM. Both have MOR formats and local news emphasis. Therefore neither significantly penetrates the Detroit area.

If you are seeking a unique radio market—an area which often causes local PDs to ask: "What do we try next?"—here it is, with over 100 different AM and FM stations.

Imagine yourself the GM of a station mentioned above. You're sitting in your comfortable office, monitoring the oldies-but-goodies on wwww-FM. Suddenly you realize it's through you and your colleagues, that the Southeastern Michigan radio listener can get, at the turn of his dial, whatever he wants—as long as he wants whatever he can get. Think about that, as W/4 music continues. **BM/E**

Summer-to-Winter Changes in AM Coverage

By Paul F. Godley, Jr.

Your AM service area is often smaller in summer than in winter. This article summarizes several years' measurements which indicate the scope of the problem. It also explains how to live with the phenomenon —since you can't change it.

MOST MANAGERS AND operators concerned with AM station performance are familiar with the problem of winter skywave-signal interference in the fringe area. Similarly in summer, electrical storms and other atmospheric disturbances can seriously affect AM coverage. Those with technical backgrounds may also be aware of seasonal changes in their station signal intensity. Operators responsible for directional antenna systems, particularly those who must make monitor-point measurements to satisfy FCC license requirements, are well aware that such monitor-point levels do not always remain constant. Long term noncyclic changes in signal intensity probably can be traced to transmission-plant problems. However, certain other cyclic variations may be caused by changes in effective conductivity, rather than by changes or misadjustments of the transmission system.

Over the years at this company, we have encountered seasonal variations in signal intensity and made positive observations thereof. Starting in 1962 with the cooperation of the engineering department of a clear-channel station, we began to accumulate data that demonstrate the magnitude of the seasonal variations which can be encountered even within a few miles of the antenna. From 1967 to 1969 we made regular measurements on six stations situated in different compass directions and at various distances from our office in Little Falls, N.J.

All the information thus obtained indicates that there can be 200% to 300% variations in AM signal levels at a given location. With the possibility of such large changes due to causes beyond a licensee's control, it is important to have some understanding of the effects.

Amount of Signal Variation

Figure 1 shows the measured variations in field intensity at our office, of the signal from WMTR Morristown, N.J., a 5-kW station which operates daytime on 1250 kHz with a directional array. Measurements were made almost daily from February 1967 to August 1969. As you can see, in winter the maximum signal level was as much as 50% above average, while in summer the minimum level was approximately 45% below average. The actual field intensity at our office, which is 13.7 miles from the WMTR antennas, varied from a low of 3.5 mV/m in June to a high of 9.7 mV/m in January.

To investigate the possible effects of different path lengths and compass headings, we measured other station signals at our office. The results are shown in the field-intensity measurements table.

The signal variations illustrated by Fig. 1 and listed in the table are typical of the cyclic variations we have encountered in the field. The clear-channel station study, which covered nearly a four-year period from 1962 to 1965, showed that stable antenna systems exhibit annual field-intensity variations. All stations which were checked during our study showed this evidence of seasonal variation.

The Cause: Temperature

Cyclic variations for a given path are more closely related to air-temperature changes than to soil-conductivity factors, such as soil moisture, freezing, snow and vegetation. The variations were found to occur from hour to hour. In fact, hourly measurements were made of WMTR one day in October when the temperature rose from 36°F at 8:30 a.m. to 65°F at 3 p.m. The 1250-kHz signal level decreased from 5.9 mV/m in the morning to 5.1 mV/m in the afternoon—a change of 14% in about six hours.

Although the signal level changes with air temperature (increasing with decreasing temperature and vice-versa), the amount of variation is not the same for different paths. To date, it has not been possible to determine why there are varying degrees of signal-level change along different paths—even after considering effective conduc-

Table: Field-Intensity Measurements

Station	Freq. in kHz	Distance in miles	Direction	Measured field in mV/m (min)	(max)	Ratio
WNBC	660	22.2	91°	23.0	31.0	1.35
WABC	770	7.3	85°	130.0	180.0	1.38
WCBS	880	22.2	91°	7.4	10.5	1.42
WMTR	1250	13.7	261°	3.5	9.7	2.77
WNJR	1430	11.9	189°	1.31	2.22	1.7
WKER	1500	8.5	332°	0.67	1.82	3.2
WRVA*	1140	1.7	30°	132.0	202.0	1.53

*Not a local station; included to show possible variations within two miles.

Paul F. Godley, Jr., is head of Paul Godley Co., Consulting Communications Engineers, Little Falls, N.J.

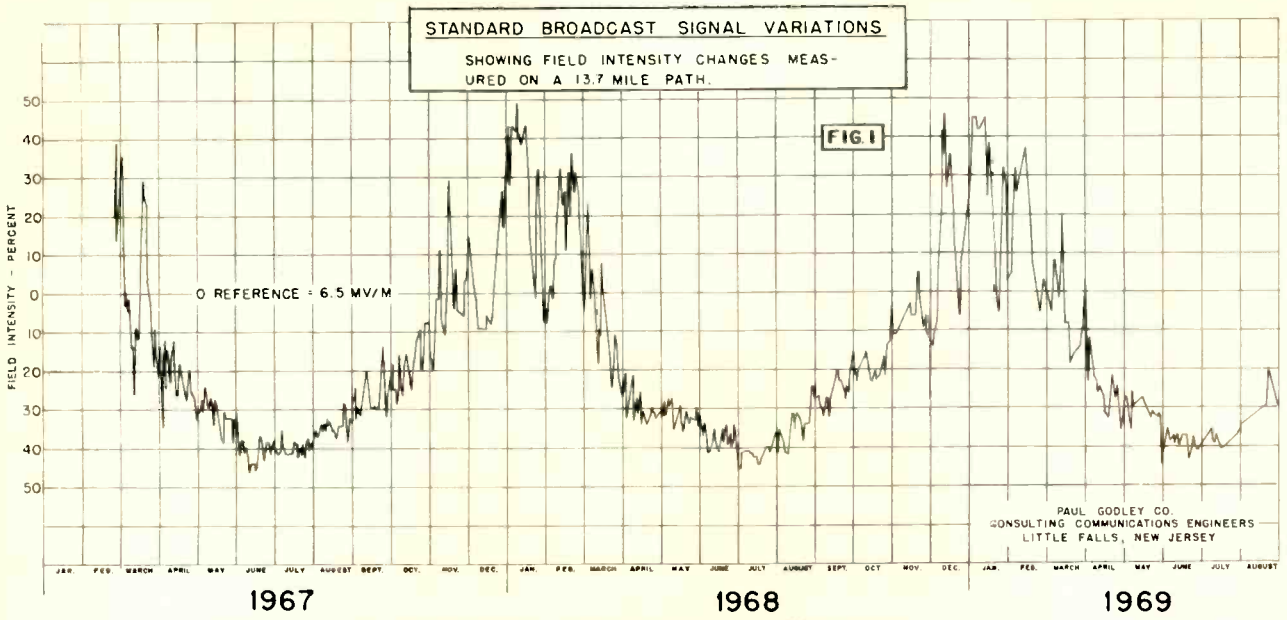


Fig. 1. Summer signal levels are low but stable, while winter levels are strong but variable.

tivities, type of terrain, compass direction, operating frequency, and degree of urbanization. Until all factors which contribute to the signal-variation phenomenon have been identified, it will not be possible to compute the degree of variation which might be anticipated for a given path.

An Example of Coverage Change

Signal-level variations have a direct bearing not only on the apparent adjustment of a directional antenna, but also upon coverage contour locations for both directional and nondirectional operations. To illustrate coverage fluctuations which might occur, we have created hypothetical station WSC (Winter Summer Change). Fig. 2 shows the WSC 0.5 mV/m contour, using a composite of the variations listed in the table. WSC, with its antenna in the business district of Sometown, USA, operates daytime with 250 watts on 1490 kHz, using a nondirectional antenna.

Terrain in the vicinity of Sometown, USA, is assumed to be hilly in some directions and marshy in other directions. To the north and east a greater variable factor has been arbitarily applied and to the southwest it has been assumed that there would be no difference between summer and winter signal levels.

The coverage map shows that Wintertown probably falls within the 0.5 mV/m contour only during the months of November, December, January and February. Halfway Corners is served only during extremely cold days in December, January and February. Zeroville happens to lie in a direction where the summer-winter variation is very small or nonexistent, and therefore is *never* included within the 0.5 mV/m contour—even on the very coldest days. Note that the coverage radius toward Wintertown is 12 miles in the summer and 19 miles in the winter. While the illustration is hypothetical, the contour changes shown have actually been measured.

Most of the measurements referred to in Fig. 1 and the table were made between 8:30 and 9:00 a.m., when the sun has not had much time to increase temperatures above early morning values. In the summer, as shown by Fig. 1, the day-to-day variation in signal strength was minimal. Summer morning air temperatures normally remain in a narrow range between 60° and 80°F. Winter air temperatures in our area generally vary from 10° or 15°F to 50° or even 60°F—sometimes covering the entire range almost overnight. The large changes, which can occur in signal strength because of large winter air temperature variations, are illustrated in Fig. 1.

Included with the technical data we recorded were such parameters as rainfall, air temperature, snow depth and general weather conditions. Additionally, for most of one year a record was kept of the temperature of the upper one inch of soil at the measuring site. Detailed study of all of this information has indicated that factors such as precipitation, snow, frozen ground and soil moisture content appear to have very little effect on signal levels. Measurements made after a one-inch rainfall following two or three sunny summer or winter weeks without significant precipitation indicated a field-intensity increase of less than 2%. In the winter, hourly changes in the signal have been observed even when the ground has been covered with more than a foot of snow.

We feel that the snow cover protected and insulated the soil from hourly temperature changes. This reinforces our earlier observations that air temperature appears to affect signal levels more directly than any other single known factor.

Distance as a Factor

It appears that distance is not necessarily a criterion which affects the amount of signal-level change. Referring back to the table we see that the WKER signal changed 320% (ratio of 3.2 to 1)

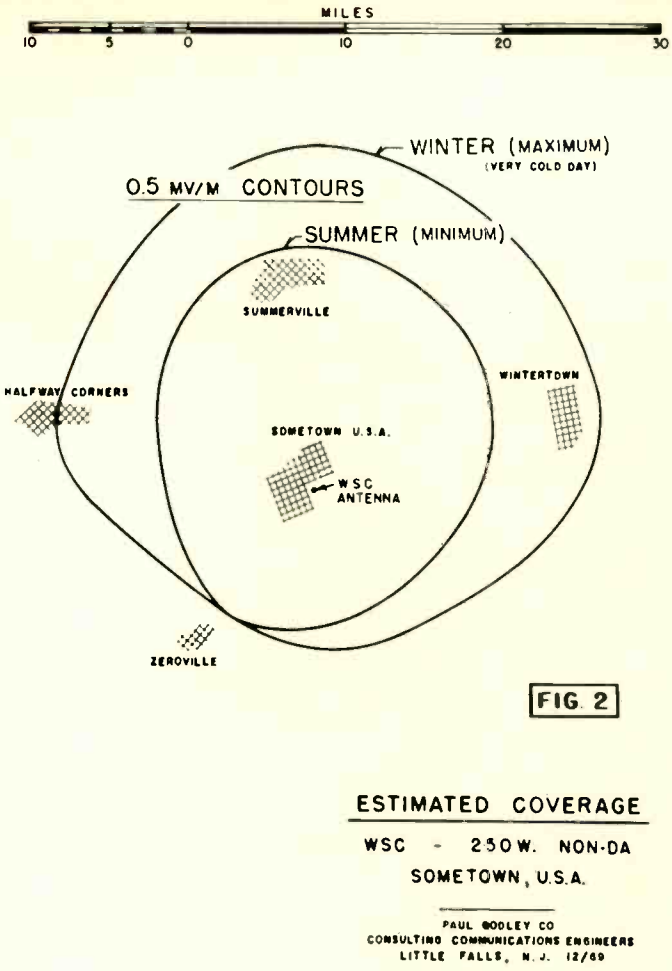


Fig. 2. Winter/summer coverage of a hypothetical station.

over an 8.5-mile path, while WNBC's signal changed only 135% over a 22.2-mile path. WNBC, WABC and WCBS are all east of our office; in fact, WNBC and WCBS multiplex into the same tower. It is interesting to note that the WABC signal-level change over a 7.3-mile path is essentially the same as the WNBC and WCBS changes for 22.3-mile paths. In Richmond, Virginia, WRVA signal level changes recorded for a 1.7-mile path were 153%.

Less frequent observations (usually twice a week) were made for two-year period on stations ranging in distance from 23 to 132 miles. No trend or clue with respect to frequency or distance was particularly evident. The greatest variation in the group was for WFIL, (560 kHz Philadelphia) which showed a signal-level change of 390% for a 76-mile path. A considerably smaller change of 150%, was found for WCAU, (1210 kHz Philadelphia) at a distance of 73 miles. While there is more than a two-to-one difference in frequency, the reason for the difference in seasonal signal-level ranges might be attributed to terrain.

(Ed. Note: Factors which might contribute to the difference: WCAU operates 50 kW nondirectional, while WFIL operates 5 kW with a different directional pattern day and night. WCAU's smaller variation might be due to the fact that the absolute field intensity measured was greater than the absolute value measured from WFIL. Furthermore, the measuring location might be on the highly variable edge of a steep null in either the day or night pattern of WFIL.)

WCAU's signal starts out up the Delaware River Valley and WFIL's signal must travel some 25 miles over hilly terrain before crossing the river. On the other hand, WTIC's 1080-kHz signal, which traverses a 96-mile path from Hartford over rugged and hilly terrain, was found to change only 210% from winter to summer.

If station coverage over a particular community or area is important, or if DA monitor point fields exceed licensed limits on cold days, management should determine whether or not seasonal factors beyond the station's control are involved. Discussions with the station's consulting engineer may be in order as a step toward identification and isolation of the problem. If the chief engineer does not have the equipment to make field checks, the consultant can plan such a program. Seasonal variations in signal strength can at times be at the root of listener complaints. This is particularly true if the listener is at an electrically noisy urban location, or a distant point which undergoes 200% or 300% changes in signal level.

It appears that any one station might encounter a broad range of possible summer-winter variations in different directions. According to measured data for the northeast part of the country, cyclical changes can go from practically nothing up to 300% or more. Furthermore, the only way of knowing for sure is to make actual field measurements in pertinent directions.

The apparent accuracy of weekly monitor-point measurements made on directional antennas can be greatly affected by summer-winter signal-level variations. Maximum monitor-point fields are usually based upon the level measured in the last full proof, plus a 5% to 10% tolerance. If the proof was done in summer, there is a good chance that monitor-point fields measured in winter could exceed license maximums.

What to Do

Where summer-winter changes affect directional monitor-point values, particularly in instances where license maximums are exceeded, a station should promptly inform the FCC. Information sent to the FCC should include sufficient data to demonstrate the summer-winter effect, which can be identified in several different ways. The first and perhaps most positive procedure is to redo nondirectional and directional measurements at the same sites in the problem direction. This is very easily done where the station normally operates with a nondirectional pattern daytime and directional night (or vice-versa in a limited number of instances).

A second method is to make complete radial measurements in the problem direction and reanalyze the data to show that the field has remained constant and that the conductivities differ from the original or reference data. A third method of demonstrating summer-winter effect is with data

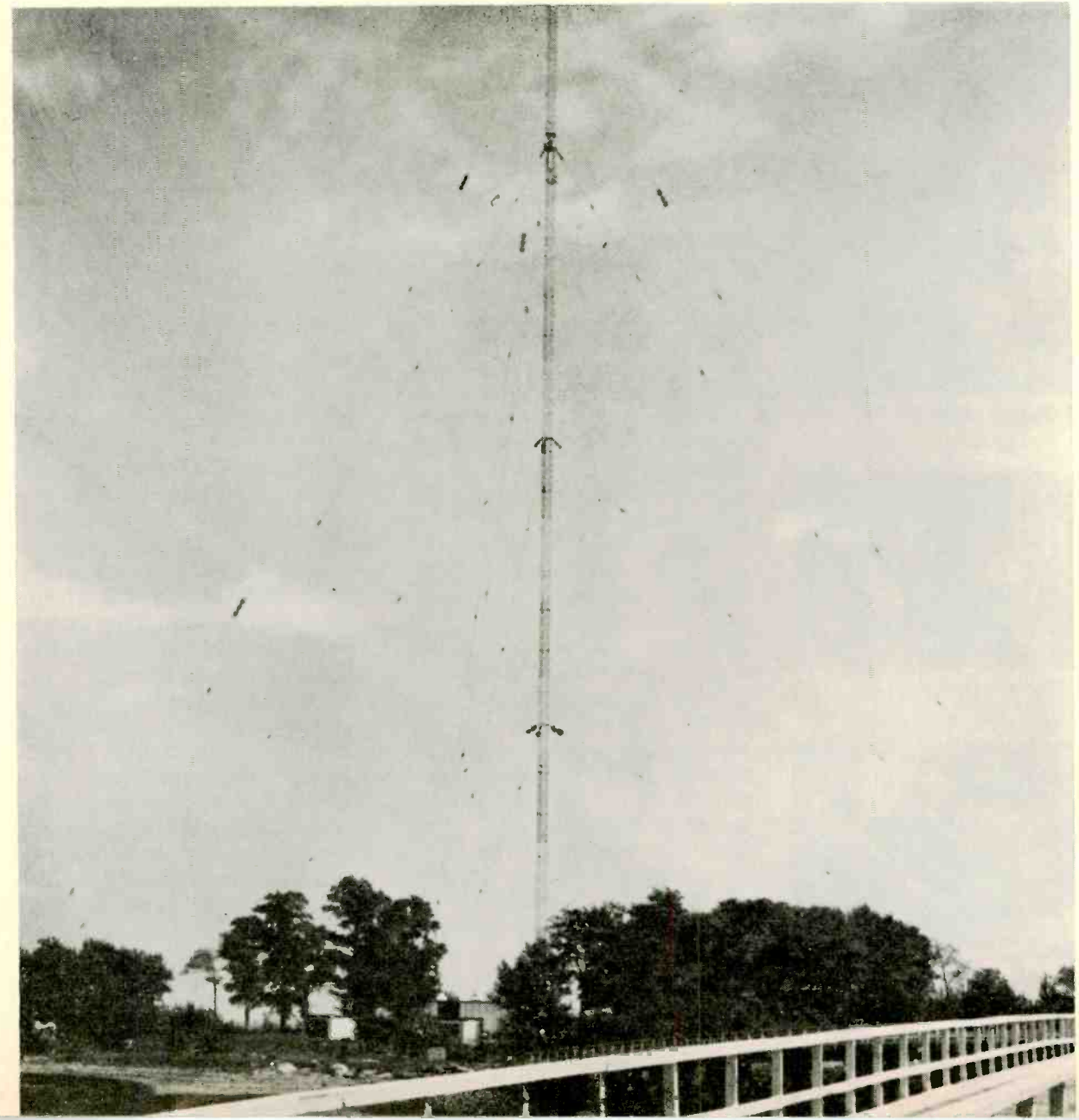
which cover a 12-month cycle of field variations. The cycle should, of course, repeat itself in the manner indicated in Fig. 1. If the problem is encountered before data for a 12-month period are available, partial information might be filed as an interim measure with complete data following as soon as a full cycle is made.

The magnitude of signal-level variation which can be caused by seasonal changes in effective conductivity dictates that this phenomenon be taken into account at any time proof, skeleton-proof or other field-intensity measurements are made. If at all possible, skeleton proofs and other pattern checks should be made in the same season that the last full proof was accomplished. In addition to the date and time of each measurement (a recent FCC requirement), the daily temperature or temperature range should be logged as an important aid in data analysis and comparison. Air temperature values should be recorded with weekly monitor-point measurements, to identify and separate antenna-system problems and seasonal variations in signal level.

Section 73.152 of the FCC Rules and Regulations indicates that actual field-intensity measurements will take precedence over computed projections. While the Rules and Regulations do not provide for summer-winter changes, the FCC realizes that such changes in effective conductivity can occur. Measurements taken in the summer often differ considerably with those taken in the winter, and many a competitive argument has ensued on this account. When differing data are presented and seasonal variation is the probable cause, the FCC is likely to accept a mean or average value of conductivity or contour location. In accordance with Section 73.152, properly made measurements—whether taken in summer, winter, spring or fall—are usually accepted in preference to theoretical projections.

I wish to acknowledge the contribution of J. Sherman, who made most of the measurements discussed herein, and C. Kauffman, who helped analyze the data. **BM/E**

A rare example of AM multiplexing, this 525-foot tower is shared by WCBS and WNBC, both 50-kW New York stations. Site is tiny High Island in Pelham Bay off the Bronx. Tower guys extend to edges of the small island, and the ground radials trail off into the surrounding salt water. BM/E Photo



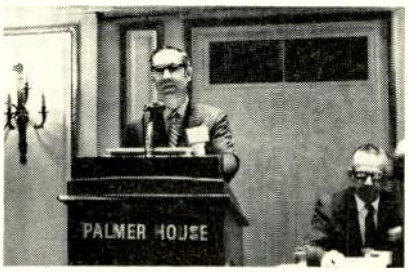
CONVENTION LOG

CATV Comes of Age

A busy podium—

Commissioner Burch . . .

President Taverner . . .



Outgoing Chairman Adler . . .

Incoming Chairman Demgen . . .


And CATV Chief Schildhause.

ON ITS 19TH BIRTHDAY, CATV declared itself mature—*CATV Comes of Age* was the official 1970 NCTA Convention theme. But like many troubled youth in this land, it has not yet discovered its true identity.

It is no longer strictly a community antenna service although a few outpost operators are content with that role.

It is not a network though it has visions of interconnecting all cable via microwave or satellite.

It is a voice for the local community in some areas—in others it doesn't want that responsibility.

It expects to engage in a variety of ancillary services but it doesn't want to become a common carrier or a public utility.

It demands the right to carry advertising on the same basis as broadcasters but does not want to be licensed.

It is encouraged by the FCC's new look at CATV and by Chairman Burch's leadership in trying to solve what the industry sees as oppressive restrictions. Yet it objects to compromise features such as the public dividend notion as the proper means of supporting public broadcasting. And it's skeptical about inserting local ads as a substitute for those contained in distant signals as a means of protecting local stations from undue competition.

Many pro-CATV speakers fed the emotions that cause CATVers to stand fast against compromise and accommodation. Included in this roster was the distinguished Eugene M. Rostow of Yale (Chairman of President Johnson's Task Force on Communications), who claimed that the courts and the FCC have exacted more rules than should reasonably exist. Rostow contended that all CATV should be free of copyright payments and he doubted whether the FCC should regulate cable in the first place since it isn't a scarce resource.

Laissez-faire purists such as lawyer Harry M. Plotkin termed the public dividend idea as unfair and the substitution of local ads on distant signals as hairbrained.

So although chronologically CATV has come of age at Chicago, ideologically it is not sure how to face the destiny-shaping alternatives before it. Such uncertainty in no way diminishes the great promise of the future and this means that CATV no longer really feels it is the underdog medium.

But by shaking the underdog mantle it has lost its cloak of unification and this worried the NCTA leadership. The recurring theme of NCTA president Donald Taverner and outgoing and incoming chairmen, William Adler and Ralph Demgen, was the need for unity and support for NCTA from all segments.

Said Taverner, "Let's have less talk of 'moms-and-pops'—big versus small—MSO versus 'little guy.' We just have to get together and recognize what tremendous opportunity we have— for ourselves and certainly for others."

Burch Low-key but positive

Convention-goers united with great expectations for the speech by FCC Chairman Dean Burch on closing day. To the disappointment of many, he revealed nothing new regarding the CATV Public Dividend discussion going on at the Commission, but did confirm that Notices of Proposed Rule Making will set them forth. (One or more are expected by the time this issue of *BM/E* reaches subscribers.)

Burch did not duck the most controversial aspects and he referred to "the heart" of the discussions as (1) permitting distant signals but with commercials stripped out and replaced with uhf station commercials and (2) the payment of five percent of subscriber fee, in addition to copyright payments, to the Corporation for Public Broadcasting.

The Commissioner drew ap-

But Lacks Identity

plause when he told the group "The time is ripe for a breakthrough for your industry. The Commission can and must show leadership in fashioning that breakthrough. As Chairman, I hope to lead that effort."

Burch said he was neither pro-nor anti-CATV or broadcasting and saw as essential a policy that would insure the healthy growth of both cable and broadcasting, with the copyright owner fairly compensated. Burch saw no copyright problem for CATV systems operatin underserved markets. He expected exemption.

He also predicted no abandonment of the goals of the all-channel receiver laws.

The intent of local origination was, again, set forth by Burch: diversity and opportunity for local expression. He said neither Congress nor the Commission would take risks on behalf of CATV if cable merely shifted the content of broadcast television on to wires at a price.

On the subject of cross and multiple ownership, Burch promised careful study, and the following week it became clear that AM-FM and newspaper cross ownership with CATV would be postponed for later but that network ownership may be prohibited.

Burch also promised to try to do something to simplify the relationships between the Federal, State and local regulators. In an earier panel session Bruce E. Lovett, former NCTA legal counsel, and now of American Television and Communications Corp., made a strong plea for FCC pre-emption rules in this area (Lovett favored licensing of cable operators as a pre-requisite to pre-emption.)

Questions of common-carrier channels and channels dedicated to specified public service are to be held for the future, Burch said.

Sol Schildhause, Acting Chief CATV Bureau, FCC, an opening-day panelist, spoke optimistically about being close to an area where compromise is possible. He envisioned a "packaged settlement" that would go a long way in freeing cable. Schildhause saw the local-for-distant substitution plan as a possible way of protecting uhf. Last year there were 90 new CATV starts, he said.

No assistance in freeing cable was foreseen as coming from the NAB. William Adler in his annual report said all hope for accommodation was off and he referred to the NAB-sponsored Free Television News Bureau *(BM/E*, April, p. 10) as conceived in duplicity and insultingly perfidious in its operations. Adler said the Senate copyright bill and the about-face at the FCC since Burch's arrival the best hope for removing CATV's shackling bonds.

The positions of NAB and the All-Channel Television Society were presented at an Early Bird session opening day to an overfilled room. John Summers, Chief Counsel, NAB, said CATV had certain obligations to protect TV since it used free TV signals. Fragmentation of audience is debilitating, if not totally destructive, he said.

TV stations must have exclusivity to the programming for which it pays dearly and this protection must be allowed for in the Public Dividend proposals, Summers added.

The NAB is opposed to any cable interconnection schemes which carry mass-appeal entertainment and advertising because it would lead to pay-TV and would siphon off programs now available on free TV. Summers said NAB was also opposed to the Senate copyright bill as now written since it would emasculate the FCC regulatory authority. The NAB would exempt systems with less than 2000 subscribers from copyright. Other NAB positions are: opposition to mandatory origination, opposition to any fee on subscribers to support public broadcasting and opposition to limits on cross ownership.

Martin Firestone of ACTS said there was a lot of bad blood between cable and uhf because a lot of uhf broadcasters have struggled hard and paid lots of money for programming, only to have it stolen by cable operators and used against uhf.

Firestone said, "You use my local signal, now you want a distant signal *plus* my signal to start origination on an unused channel. Where do you get the nerve?" Firestone's words were biting but his tone was not bitter. He drew laughter when he said the only support ACTS would give cable would be in its efforts to get itself licensed.

Several broadcasters in the audience with cable interests took exception to the organization statements. Their reasoning: Radio wasn't protected from TV and both survived. Competition is healthy.

Local Origination Big Topic

Support for origination got a big boost from NCTA wheels. "The power of broadcasting is in its origination capability: we need a comparable or superior capability," said Adler.

How to get paid for origination expenses was the big question, however, and the best resource people were Gegory J. Liptak of LVO, Tulsa, Oklahoma; Barry Stigers, Athena Communications, New York, N.Y. and Xenephon Mitchell, Ottawa TV Cable, Ottawa, Ill.

There were few sure answers and Liptak and Steigers kept probing the audience for inputs. The inconclusive conclusions: Sponsorship is easiest to find for local news, high school sports and local election coverage. Mitchell reported unusual success for a What's New show particularly when merchandise is given away.

Although most operators with experience were not overly optimistic about prospects for selling time, they were agreed that one ingredi-

ent for eventual success was outstanding local cablecasting. Once you've demonstrated community interest and involvement, selling comes easier—at rates 20% higher than local radio.

Cable operators who must begin origination April 1, 1971 found themselves deluged with products and services. Some eighteen program sources had booths or suites set up and a number of other sources (some who exhibited at the NCTA Programming Conference, May 1—see *BM/E* June, p. 27) were circulating the area promoting their services.

Several programming sources wised up between the May and June meetings and shifted their emphasis to more local programming. CBS Enterprises went local, for example, and stressed formats —*Crosstalk* (local controversy), *Sound-off, For Women Only*—that used local hosts and participants. CBS Enterprises' game shows were also geared to use local participants.

Monitel, the 24-hour information service backed by Reader's Digest (time, weather and helpful hints as well as nationally paid ads) revealed a tie-in with TV celebrity Jack Barry. The Barry services included advice on training local master of ceremonies.

On hand to advise you on whether or not to buy the services of all of the other program vendors was National Telemedia Inc. This company said going into programming was such a crucial move that it would be worth paying National Telemedia $150 a day for advice. The company also offered some aids and props to facilitate local origination. The consultants, incidentally, are experienced, practicing cable operators.

One of the newest entrees was Nicholson-Muir Productions. Successful in broadcasting productions, the principals are gearing what they term "Video Encyclopedia" programs to bridge the gap between commercial TV and educational TV. The company expects to offer the programs free, by lining up national sponsors.

Monitel, between May and June, came up with national sponsors for its informational show and it, too, offered the prospect of "free" programming.

Next month: Report on Exhibits.

Program Sources at NCTA 70
And the NCTA Programming Conference

Associated Press 305
AP newswire and DataVox Character Generator

CBS Enterprises Inc. 306
Formats, aids to produce 15 hours of live programming, talk and game shows

Cable Channels Inc. 307
Sports programs

Cable Communications Service 308
Diversified programs

Cable TV Productions Inc. 309
Specialty program production and distribution

Computer Image Corp. 310
Animation and creative design at low cost

Creative Cine-Tel Inc. 311
Popular reruns

Department of Health Education and Welfare 312
Informational films

Diversified CATV Service Inc. 313
Up to 28 hours entertainment and educational film including lease of equipment

Documentary Broadcasting Syndicate 314
News documentary fresh daily

International Tele-Cable Productions Inc. 315
Romper Room for local origination and sponsorship

J. R. Hampton and Associates 316
Bingo service

Houston Hoyle and Co. 317
First-run motion pictures

KAP V Films Ltd. 318
Sports films

Kepler Television Productions 319
Variety show containing pre-sold ads

Leviathan Communications Inc. 320
Continuous news with provision for local inserts

Local Origination TV Systems Inc. 321
Films and animation for advertisers

MarKit Communications Inc. 322
Children's programs; do-it-yourself

Monitel 323
Game show, weather and witty sayings; systems for continuous channel, including presold national ads

National TeleMedia Inc. 324
Channel story boards, aids, programming consulting

National CATV Library Inc. 325
Broad background of shorts and edited features in seven areas

National Instructional Television Center 326
Educational and cultural tapes and films

National TeleSystems Corp. 327
Diversified programs for 18 hours per day

Nicholson-Muir Productions Inc. 328
Educational topics in entertaining format; New Video Encyclopedia service is sponsored

Press Association Inc. 329
Transparencies for news back up

Sandy Frank Program Sales 330
Travelogues, adventure films

TeleMation Program Services 331
Children's programs, cartoons; feature film buying service

Television Presentation Inc. 332
Alphamatic news service

Trans America Films Corp. 333
Feature films—2000 titles

Thomas J. Valentino Inc. 334
Music and sound effects library

For more information on programs offered, circle boldfaced Reader Service Card Numbers.

You're a tough audience!

For years we've been offering a 30-day free trial, a full year's warranty on parts and labor, an increase in effective coverage, a guarantee of protection against overmodulation without distortion — but there are still a few of you who haven't tried AUDIMAX and VOLUMAX.

Audimax reacts to any given program situation in exactly the same way as your best audio man would — only a lot faster and more efficiently. It eliminates distortion, thumping, pumping, audio "holes," and bridges through program pauses to eliminate the "swish-up" of background noise. It even returns the gain to normal during standby conditions. Big claims? You bet. But we're willing to back them up with a 30-day free trial in your own studio. After that, send us $625 if you like it. If not, send it back — freight charges collect. What can you lose? By keeping average modulation up, everybody wins. Volumax for AM broadcasters costs the same as Audimax and limits peaks without side effects. Its action may be gentle or microsecond fast. That depends on the program waveform but the end result of the Audimax-Volumax team is always a more even and pleasant sounding program that may be transmitted safely at much higher effective power levels. That's another big claim we'll back up with a free trial. We've even got a claim for FM and TV broadcasters. FM Volumax is absolutely guaranteed to prevent FM overmodulation and SCA crosstalk without distortion. This one costs $725. Audimax Stereo, $1,250. FM Volumax Stereo, $1,445.

Fill out and send us the coupon below. Let us back these claims with a 30-day free trial. Or better yet — call us collect at (203) 327-2000.

PROFESSIONAL PRODUCTS
CBS Laboratories, Stamford, Conn.

Please send me for 30 days free trial, the following products. I understand there is absolutely no obligation on my part. If for any reason I want to return the units, I'll just send them back to you for full credit.

_____ Audimax _____ Volumax _____ FM Volumax
_____ Stereo Audimax _____ Stereo FM Volumax

Name .....

Station/Company .....

Address .....

.....

.....

PROFESSIONAL PRODUCTS

CBS LABORATORIES

A Division of Columbia Broadcasting System, Inc. 227 High Ridge Road, Stamford, Connecticut 06905

Circle 137 on Reader Service Card

BROADCAST EQUIPMENT

Pre-fab scenery

Full-scale, three-dimensional full-color scenery made of vacuum-formed vinyl can be bought for about $60 a panel, ready to use; set construction involves attaching appropriate panels together and propping them up. Custom models available using station call letters or logo, while stock facades include: arches (colonial, Roman or Moorish); library (shelves with books); doors of many styles; wall sections (such as New England Field Stone behind the English Mantle in photo); bronze gates; a Corinthian column; and many more. FELLER VACUUM FORM STUDIOS.

Circle 283 on Reader Service Card

Adjustable tripod dolly

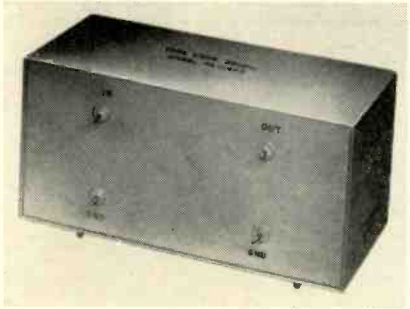
Model AD-1, designed to accept into two in. diameter sockets all tripods with any kind of leg tips; adjustable from 23 to 35 in. circle; each of three caster rubber wheels has double ballbearing swivel and toelock brakes; three pounds; $29.95. WELT/SAFE-LOCK.

Circle 280 on Reader Service Card

"Compromise" equalizers

Group delay "compromise" equalizers for Modem (data transmission system) applications, reduce by factor of two the differential delay range requirement on any Modem operating on Bell Schedule 3002 telephone lines; models available for C1 conditioning (FA 1478), C2 (FA 1501), C4 (FA 1479) and schedule 3002 (FA 1477). $395. SEG ELECTRONICS.

Circle 275 on Reader Service Card



Compact reverb unit

Model RE-100 can be mounted directly in an audio console or rack; input and output amplification and equalization are self-contained; front panel switches select type and time of reverberation. MELCOR ELECTRONICS.

Circle 281 on Reader Service Card

B&W TV camera convertible into color

Model PK-430 high-resolution monochrome camera produces color pictures when a special color encoding optical system is added and "small package" of color processing electronics plugged in. Designed for low-budget operations wanting to avoid equipment obsolescence when changing from b&w to color. Light passes through two striped filters before reaching pickup tube where color information is processed. Camera: $5995; color modification equipment: $755. RCA.

Circle 276 on Reader Service Card

Mobile TV communications system

Four-input, ten-output communication matrix with solid-state switches, simultaneous program channel; self-contained system including preamps, switching cards, power amps, remote amps and power unit. ARBOR SYSTEMS.

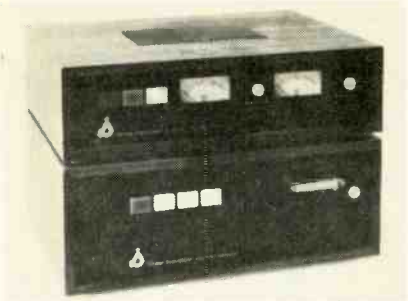
Circle 277 on Reader Service Card

Digital clock readout for station monitors

Central digital time source can display time in the corner of TV monitors throughout station; system includes central clock and timing inserters for each monitor chain; input for inserters is output from central, providing constant synchronism; $5000 for clock, character generator circuits, controls and video insert keyer. CHRONO-LOG.

Circle 278 on Reader Service Card

Broadcast cassette reproducer/recorder



SI-700 series reel-to-reel cassette tape reproducers and matching SI-800 series record amplifiers feature freq resp 40 Hz to 15 kHz, signal-to-noise ratio of 50 dB, wow and flutter under 0.2%, auto cue capability; operate at 1-⅞ ips; available in half- and quarter-track configurations for mono, stereo or quad (two record amps needed for quad); operate with 117 or 230 Vac, 60 Hz (50 Hz also available). SHAFER INTERNATIONAL.

Circle 282 on Reader Service Card

Compact TV camera

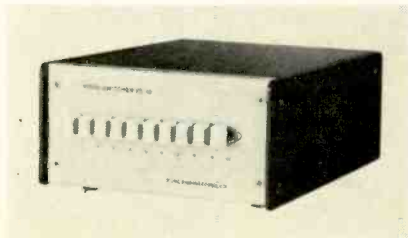
TVC-500 monochrome camera features both rf output for standard TV receiver and video output for monitor; screwdriver adjustment selects output freq covering channels

two through six; video output has 550 lines horizontal resolution, 300 lines for rf; weight is 6 lb including 25-mm f/1.8 lens; costs $325; wide-angle and telephoto lenses also available. JERROLD ELECTRONICS.

Circle 285 on Reader Service Card

Passive video switchers

Models PVS-8 and PVS-10 for eight or ten video inputs in CATV or ETV use; units include extra set of contacts for audio switching and have



one, two or three switched line outputs; all inputs terminated 75 ohm; $125 to $175. PAUL J. FUNG ENGINEERING.

Circle 286 on Reader Service Card

Underground service terminal

Mono-Seal XL, for use with telephone or communications cable, will accept a wire and cable bundle up to 3½ in. diameter; terminals provide moisture-proof seal; permits installation of uncut cable loop with all service wires to be connected at the terminal point—at time cable is buried—or free end of service wire can be capped for later splicing and

extension. PREFORMED LINE PRODUCTS COMPANY.

Circle 287 on Reader Service Card

Indoor/outdoor mike

Model 811 Ultra-Cardioid microphone with 25 dB front-to-back re-

jection ratio, designed for indoor or outdoor use, with sintered phosphor bronze acoustic filter, grill assembly constructed to protect diaphragm from dust and magnetic particles; freq resp 40 Hz to 15 kHz, impedance adjustable to 40,000 or 150 ohms; sensitivity −50 dB at high impedance, −54 dB at low; specially aimed at use where feedback or high background noise is a problem. THE ASTATIC CORP.

Circle 288 on Reader Service Card

Fiberglass cases

Equipment cases for storage or transportation, fit all rack mounts of

Conrac Steps Up The Pace

With The Solid-State Color Standard

Well aware of industry demands for improved reliability, we brought out the high quality RHA series of stabilized monitors for rigid studio requirements. All solid-state. Controlled phosphor... for the first time, assured color match between all monitors in a series. Today, only a few months after introduction, the RHA models are the color standard of the broadcast industry.

A Color-Matching Display Monitor

At the same time, Conrac introduced a companion series of KHA utility displays for less stringent audience and client room use. Also solid state, broadcast quality, but at lower cost. And, the same controlled color-matching phosphor. For the first time, assured color matching between monitors of different model series became possible.

And a Color-Match Modernization Program

The Conrac CYA17 and CYB17 models, by far the most widely used color monitors in the field, will still out perform anything except the new RHA. But the kinescopes don't match the new ones. You could junk the monitors and buy our new models. Maybe you should. But that might not necessarily serve you best. Conrac has a practical answer. Modernization. Now you can return your CYA17 or CYB17 to Conrac for a complete overhaul. Not only do you get a new 90-degree kinescope but it uses the same controlled color-matched phosphor as our RHA and KHA models. For only $800 total, you also get extensive mechanical and electronic modifications and a full one year warranty. Ask for a return authorization today.

Stick Around. After 21 Years, We're Running Harder Than Ever

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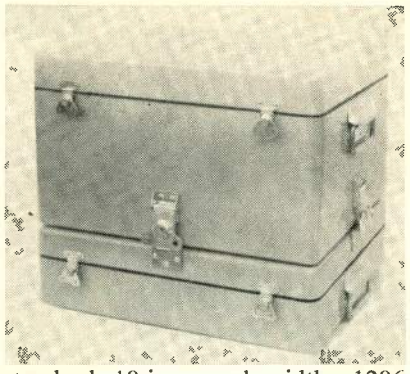


standard 19-in. panel width; 1296 possible size variations, in blue, white or yellow, vinyl or smooth; features atmospheric seal, corrosion resistance and watertightness for instrument protection; custom cases also available. EDO WESTERN.

Circle 289 on Reader Service Card

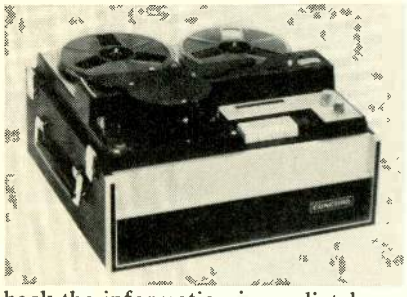
Location equipment

Kit or individually ordered line of equipment for location work, especially for CATV and ETV use, includes booms, water weights (plastic bag weighing 21 pounds when filled with water), stand extensions, background support, floor-to-ceiling pole, sun diffuser, black screen, umbrella rigs, door booms, furniture stands and other such apparatus. LOWELL-LIGHT PHOTO ENGINEERING.

Circle 290 on Reader Service Card

Time-lapse videotape recording

Videotape recorder will record from six to 48 hours continuously at variable time-lapse intervals and play



back the information immediately on a single 40-min tape; other features include real time recording and playback, accelerated playback, delayed (slow motion) playback and still time or stop motion replay; designed for business and educational purposes. CONCORD ELECTRONICS.

Circle 291 on Reader Service Card

Control console for CATV and CCTV

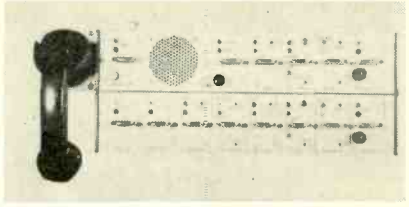
Modular designed units allow expansion of production control console without replacement of key components; unit drives switching equipment for camera, plus special effects

and VTR, all from single power cord that can be plugged into the wall; console on wheels for mobility, can be fit into station wagon, and, when fully equipped, provides four sound and three vision channels. KAPCO, INC.

Circle 292 on Reader Service Card

Data over video

Series CC-400 provides multichannel data and voice circuits in the unused spectrum above broadcast quality video on a conventional microwave or in the midband and subchannel region on a TV cable network; uses include transmitter remote control, facsimile and engineers' private line; one group carrier handles up to 48 voice or data circuits; individual

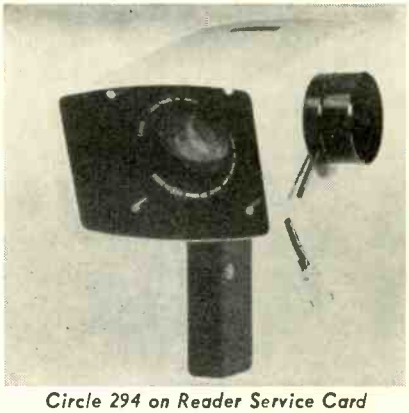


channel units available as complete systems including talk battery, ring generator, dial loop, etc. COASTCOM.

Circle 293 on Reader Service Card

Zoom lens

TV zoom lens PV6x18B1 is designed for new breed of small color cameras using 1-in. Plumbicon tubes. Range of focal lengths is 18.5-110 mm, zoom ratio 5.95x, and maximum relative aperture, 1:2.3. Takes flange mount; zoom, focus, and iris functions are manual. CANON.



Circle 294 on Reader Service Card

Log, schedule masters

Plastalucent master is a plastic sheet imprinted as a program log, availability schedule, billing invoice, etc. Type or write information on master, then run through office copying equipment (Xerox, Thermofax, etc.) producing multiple copies. Master may then be erased and reused. Makes scheduling easier. TRANSFACE PROCESS CO.

Circle 295 on Reader Service Card

NEW LIT

For copies of these literature offerings, circle numbers for appropriate items on Reader Service Card.

Uncooled parametric amps featuring noise temps to 100° K, covering freq range from one to eight GHz with bandwidths to 500 MHz; photos, graphs and specs included in RHG Labs' product sheet. **200**

Rack-mounted video multiplexer in Cohu tech sheet. **201**

Delay lines in Daven four-pager with discussion of "seven prime parameters that must be considered in specifying a delay line: delay time, risetime, attenuation, impedance, distortion, temperature coefficient and package design." **202**

AM/FM transmitters in eight-page short form catalog from AEL—AM series power from 250 W to 100 kW, FM from 10 W to 20 kW. **203**

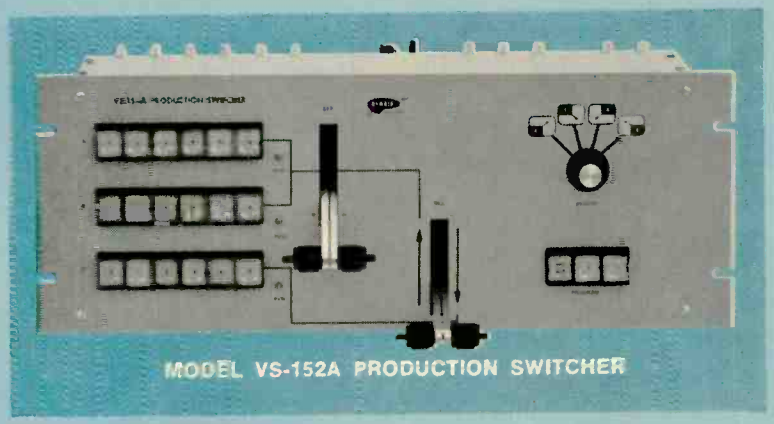
Coaxial relay catalog, 20 pages from Dow-Key, listing electrical and mechanical specs, indexed for reference. **204**

"1970 Consumer Electronics 'Golden Anniversary' Annual" from EIA's Consumer Products Division outlines the industry's first fifty years, with year-by-year statistical review of TV, radio, phonograph and magnetic tape products through 1969. Other features: listing of industry contributions to national economy; chronology of important industry events; glossary of terms; and list of names and addresses of major industry allied trade associations. To get yours, simply send fifty cents to the Electronic Industries Association, Consumer Products Division, 2001 Eye Street, N.W., Washington, D.C. 20006.

Instrument carrying cases made in custom sizes by standard process, sizes ranging by 1/16-inch increments from four to above 36 inches width and height; soft and padded metal cases available from MM Electronic Enclosures, described in separate bulletins. Circle **205** for "Soft-Pak," **206** for moulded military containers.

Commercial systems equipment for CATV, ITV, CCTV, MATV installations; 24-page catalog covers over 225 items, including antennas, amplifiers, coaxial cable, couplers, power supplies, and signal equalizers, as well as products in many other categories; from Winegard. **207**

MODEL VS-150A VIDEO SWITCHER-FADER



MODEL VS-152A PRODUCTION SWITCHER

Start Your 1972 Studio *NOW!*

Dynair's new Vertical-Interval Switchers Make it Possible

You'll probably have to wait at least two years before you see anything comparable to Dynair's brand-new VS-150A Video Switcher-Fader and VS-152A Production Switcher. *Right now,* these completely new units give you professional programming capability . . . *and they do it by means of electronic switching during the vertical interval to assure glitch-free signal transfer.*

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- Accepts 3 non-composite and 2 composite video inputs.
- Provides: Instantaneous switching between two inputs
  Fade-in or fade-out of a single input
  Manual fade or dissolve between two signals at any desired speed
  Superimposition of two inputs with any desired degree of mixing
- Easy operation: Split lever, locking fader handles $750.00

Model VS-152A Production Switcher

- Accepts . . . 6 non-composite and 2 composite video inputs
- Provides . . . Horizontal and vertical wipes, inserts from any corner and diagonal expansion
  Mix control for fade-in, fade-out, lap, dissolve and superimposition.
- Easy operation . . . Automatic preview system for positive indication of program conditions $1795.00

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DYNAIR ELECTRONICS, INC. SAN DIEGO, CALIFORNIA

Circle 119 on Reader Service Card

NAMES
IN THE NEWS

New members of the NAB Secondary Market Television Committee are: **Joseph Bonansinga** (WGEM-TV Quincy, Ill.); **J. Allen Jensen** (KID-TV Idaho Falls, Idaho); **Rudolph O. Marcoux** (WLBZ-TV Bangor, Me.); **William Patton** (KATC-TV Lafayette, La.); and **William F. Turner** (KCAU-TV Sioux City, Iowa).

Charles Fabso, formerly of Philco-Ford and GE, has been appointed vice-president, marketing, of Toshiba America, Inc. (TAI).

The newly-created position of manager, technical services, at Video Systems Division of Audiotronics Corporation belongs to **Raymond L. Sobel,** who had been with RCA.


Raymond L. Sobel


Walter E. Sutter

Hallicrafters Communications Equipment Division vice president, **Walter E. Sutter,** has been elected president of AFCEA, Washington, D.C., Chapter.

Daniel R. Wells has been named the director of engineering and technical operations for the Public Broadcasting Service. Mr. Wells had been director of engineering services at CBS Television Division.

The Audio Engineering Society has named **James J. Noble,** vice-president of engineering at Altec Lansing, a Fellow of the Society "for his contribution as designer and director of engineering for a broad line of audio electronic equipment."

The Finney Company has appointed **Andrew Williams** as senior design engineer, working with CATV passive devices. Before joining the company, Mr. Williams had been at Kaiser and Entron Incorporated.

James A. Fellows, director of the Office of Research and Development, NAEB, has been appointed executive director of the NAEB's Professional Services Department. Associate director of the Instructional Services Department is **William Dale,** who had been assistant to the president of NAEB.

SALE OF THE MONTH

"Spotlight" sells shopping center

Matt Mills
Account Executive
Radio WEEZ, Philadelphia-Wilmington

The Challenge: Collegetown Shopping Center, Glassboro, New Jersey, is a cluster of 19 individual specialty stores and major chain stores. They sell clothing, jewelry, records, food, paint, drugs and plenty of other wares to a good number of surrounding communities in the Gloucester County area. The merchants did all their advertising in newspapers—not a one of them bought radio and none had much money to spend for radio even if they wanted to. What I needed was a way to give adequate coverage to as many as I could interest, and to do it at a price they would be willing to pay.

The Solution: I went to each merchant in the shopping center with a program I called "Spotlight on Collegetown." It would run during the 11 am to noon hour every Tuesday (good housewife time) and during that hour each merchant would have a one-minute commercial. The disc jockey doing the show would talk periodically about the fabulous bargains and great service offered by the stores in Collegetown. The noncommercial content of the program would include community news and announcements, such as church functions, social events, and birthdays and anniversaries celebrated by people in the immediate back-up communities surrounding the center.

How did it work? Well, no one wanted to be the first to sign up, but I did manage to get 17 of the 19 stores to agree to initial 13-week contracts. And when that period was over, they all signed on for another 39 weeks.

The secret was that all the merchants were involved at once—they never would have received the same results from one-minute commercials scattered at random during the week. It turned out to be an excellent way to get a long-term advertising contract and a good way to do a selling job for merchants with small ad budgets.

Let's Hear From You . . .

Here's the start of a new monthly BM/E department giving small market radio and TV ad salesmen a place to exchange stories and ideas from their own experiences. The format is simple—just send us a short description of your best "Sale of the Month" in the style you see above. If we use it, we'll send you $10.00 plus a certificate "AWARD FOR THE SALE OF THE MONTH." Good Luck!

Norelco introduces custom mixers from stock.

Now dozens of custom console configurations assemble from 4 unique modules. Result: the first custom consoles with mass-production price, reliability and delivery.

■ Current dependent mixing allows for console configurations from 8 inputs with 1 output, to 16 inputs with 8 outputs. ■ All Norelco MD consoles utilize Danner silicone encapsulated attenuators. ■ Up to 4 echo send/return channels. ■ Switchable equalizers providing high end, low end, and presence equalization. ■ Panpots on each input channel (MD16RF8 only). ■ Switchable input sensitivity. ■ Stereo monitoring facilities. ■ Built-in 5 frequency oscillator. ■ Prelisten, talk-back, and program-distribution channels. ■ All connections via floor level screw type terminal strips. ■ Insertion points for external signal processing equipment. ■ Detailed individual test reports accompany each Norelco custom mixer, assuring guaranteed performance.

Your Norelco MD mixing console can be operational in a matter of hours. Many versions in stock for immediate delivery.

Norelco MD8R1: $6,648

Norelco MD16RF8: $22,950

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Freq. response: 40 . . .15,000 Hz ±0.5dB

Distortion: less than 0.5%

Gain: 101dB

Output level: +18dBm

Relative noise input: better than —120dB

Cross talk: better than 80dB

MD12RF4 Console provides 12 inputs, 4 outputs and 4 switchable equalizers for $10,470.

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A NORTH AMERICAN PHILIPS COMPANY

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Circle 125 on Reader Service Card

Monitor Problem

Continued from page 24

ferent phosphors have been used. When attempts to match two monitors having widely different phosphors are made, it is found to be an impossible task.

It is interesting to note in this regard that there are about 8600 hours in a year, with most monitors operated either 24 hours a day or at least half a day throughout the year. Picture tubes are generally rated for a life of 3,000 to 5,000 hours. So the old phosphors should be self-eliminating. But, chemists and physicists are continually searching for new and brighter phosphors, so the end is not in sight.

Phosphor Solutions Have Shortcomings

Several solutions to the phosphor problem are under consideration. One proposal is to use special picture tubes which have true NTSC primaries in professional control-room monitors. Such tubes can be made, at great expense and with low light output.

Another suggestion is to standardize on modern phosphors now in use and change the system colorimetry to fit the phosphors. Such a system works elegantly for the moment, but the changing of the standards is a serious matter not to be taken lightly. The effect on existing cameras and receivers must be carefully considered, and there is always the possibility that when and if significantly better phosphors are developed, it may again be necessary to modify the system standards.

It is theoretically possible to compensate exactly for non-standard phosphors (within limits of the triangle formed on the CIE chart by the phosphor coordinates) by means of a complex non-linear electrical network. Such a scheme is outlined in Fig. 2. Here we first remove the gamma correction which was applied in the camera chain, then matrix to convert from the NTSC colorimetry to the new phosphors, and finally re-add the gamma corrections for the kinescope. On the face of it, this appears impractical because of its complexity and the fact that necessary manufacturing and misadjustment tolerances might well make the critcial monitor matching problem even worse.

It is possible to make a "poor man's compromise" linear network by omitting the gamma corrections. Such a network cannot possibly be correct, but it can result in a very marked improvement in color rendition at negligible cost. Such networks have been used in home TV sets, but not in professional monitors. Before such tech-

Continued on page 54

Attention TV Stations:

We've got news for you!

FILMLINE'S professional color film processors now available for TV NEWS

The FILMLINE Models FE-30 and FE-50 are exciting new color film processors designed specifically for use in television station news departments. The design is backed by Filmline's reputation as the world's leading manufacturer of professional film processors for the commercial motion picture laboratory industry.

Now for the first time the television industry can enjoy the benefits of professional caliber equipment incorporating exclusive FILMLINE features that have paced the state-of-the-art in commercial laboratories, at a cost lower than processors offering less.

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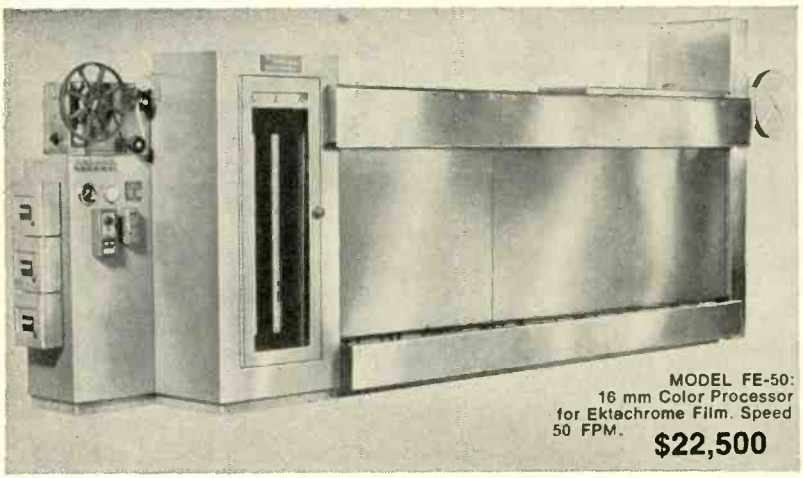
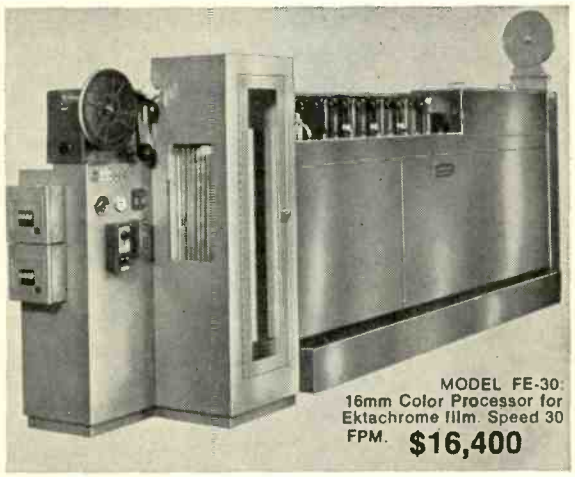


MODEL FE-50: 16 mm Color Processor for Ektachrome Film. Speed 50 FPM. **$22,500**



MODEL FE-30: 16mm Color Processor for Ektachrome film. Speed 30 FPM. **$16,400**

● **"FILMLINE OVERDRIVE FILM TRANSPORT SYSTEM"** This marvel of engineering completely eliminates film breakage, pulled perforations, scratches and operator error. The film can be deliberately stalled in the machine without film breakage or significant change of film footage in solutions. The heart of any film processor is the drive system. No other film drive system such as sprocket drive, bottom drive or simple clutch drives with floating lower assemblies can give you the performance capability of the unique Filmline Overdrive Film Transport System.

● **"TORQUE MOTOR TAKE-UP"** gives you constant film take-up and does not impose any stress or strain on the film itself. Completely independent of the film transport system. This FILMLINE feature is usually found in professional commercial processors but is incorporated on the FE-30 and FE-50 models as standard equipment. Don't settle for less!

● **"TEMP-GUARD"** positive temperature control system. Completely transistorized circuitry insures temperature control to well within processing tolerances. Temp-Guard controls temperatures accurately and without the problems of other systems of lesser sophistication.

● **"TURBO-FLOW"** impingement dryer. Shortens dry-to-dry time, improves film results, and carefully controls humidity content of your valuable (and sometimes rare) originals. Immediate projection capability is assured because the film dries flat without the usual curl associated with other film processors.

● **"ZERO DOWN TIME"** The reputation of any film processor is only as good as its reliability. The combination of the exclusive and special added Filmline features guarantees trouble-free operation with absolute minimum down-time and without continual operator adjustments. Recapture your original investment in 2 years on maintenance savings alone. Filmline's "Push the button and walk-away processing" allows inexperienced operators to turn out highest quality film.

● **"MATERIALS, CONSTRUCTION AND DESIGN"** All Filmline machines are constructed entirely of metal and tanks are type 316 stainless steel, heliarc welded to government specifications. The finest components available are used and rigid quality control standards are maintained.

Compare Filmline features to other processors costing more money. Feature-by-feature, a careful evaluation will convince you that Filmline offers you more for your investment.

Additional Features included in price of machine (Not as extras).

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TV Stations: WAPI-TV, KTVI-TV, WXYZ-TV, WTPA-TV, WBTV-TV, WEAT-TV, WMAL-TV, WSYR-TV, WDSU-TV, WVUE-TV, WJXT-TV, WTOP-TV, WAVY-TV, KTAR-TV, WTVR-TV, WFBC-TV, WMAR-TV, WCKT-TV, WAVE-TV, WCPO-TV, WAPA-TV, WCIV-TV, WJIM-TV, WWL-TV, KYW-TV, KETV-TV, WNBQ-TV, KSLA-TV, WSAZ-TV, WHP-TV, WHCT-TV, WTWO-TV.

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"When you buy quality Filmline Costs Less"

Circle 126 on Reader Service Card

Monitor Problem

Continued from page 52

niques can be used in monitors, the matrix design must be rigidly standardized or the whole matching problem could be aggravated.

There Is Hope And You Can Do Something Now

There is no doubt that there is a color problem. It is refreshing to see that it is recognized and something is really being done. The various committees are working on the problem, as are the equipment manufacturers. It is anticipated that in the near future, the committees will have firm recommended standards and practices.

In the meantime, what can the broadcaster do about the problem today? *1.* Use professional monitors at every point where the color video signal is controlled or evaluated. *2.* Use monitors with matched phosphors. *3.* Allow operating time before setting-up monitors, at least one-half hour with one hour preferred. *4.* Use an adequate light source for neutral white setup and color meters. *5.* Use experienced, skilled operators who have normal tri-color vision. *6.* Maintain neutral, standard ambient lighting in the monitor area.

By adhering to these suggestions, the broadcaster can take a giant stride toward producing good, uniform color programs. **BM/E**

Better Color

Continued from page 27

here, stressing the importance of careful control of production to obtain good color prints.

Standard Density

It seems unlikely at this point that there will soon be a recommended or standard density for TV film black. SMPTE's RP-7 was established for monochrome black, but never worked too well. Densitometer measurements indicated one value of film density, but the film looked like some other value when projected through a telecine chain.

In Europe, the EBU and CCIR have accepted proposals that certain densities be referred to as reference white. This would correspond to an object in the main part of the scene, which object has 60% reflectance. The working value is not accepted yet in the U.S., although SMPTE is studying it.

Test Film

Some have criticized the SMPTE test film, urging the inclusion of additional material and the elimination of some present data. Zwick is currently accumulating suggestions on possible changes in the film, but it's too early to say what alterations—if any—will be made. **BM/E**

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DISPLAY CLASSIFIED ADVERTISING: $22.50 per inch 1x; $22.00 per inch 3x; $21.00 per inch 6x; $20.00 per inch 12x. ALL OTHER CLASSIFIED ADVERTISING 25¢ per word; minimum $3.00. BLIND BOX NUMBER: No extra charge. Replies sent to address below will be forwarded to you. PAYABLE IN ADVANCE; send check with order. CLOSING DATE: 5th of 2nd month preceding issue date.

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The engineers we seek will include their talents in Video, Audio and Computer related circuitry designing products for the Television Broadcasting Equipment market. Send resume to the personnel manager. Vital Industries, Inc., 3614 S.W. Archer Road, Gainesville, Florida 32601.

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If you are mature, have a good background and in Broadcast Engineering—If you are a self starter and take pride in your work—if you're qualified to handle SKC D/500W DA Night remote control—if you are you're worth five figures, a vehicle plus fringe benefits to us. Rush resume with photo to Bernie Baker, Vice President General Manager WDAK Radio Box 1640, Columbus, Georgia 31902.

STUDIO MAINTENANCE SUPERVISOR for New York City UHF Station. Must be thoroughly familiar with Ampex 1200VTRs and Color Terminal equipment. Union scale with salary commensurate with experience. Send resume to: Fred M. Samuel, Chief Engineer, WXTV Channel 41, 641 Main St., Paterson, New Jersey 07503, or call (201-345-0041). An equal opportunity employer.

POSITIONS WANTED

Director of Engineering/Chief Engineer of station or group. Position desired by design engineer with major manufacturer. 27 years all phases of engineering: FCC application/consulting, construction, operation and maintenance, AM, FM and TV. Immediate interview. 317-962-5276. BM/E Box No. 770-1, Blue Ridge Summit, Pa. 17214.

A young, experienced broadcaster seeks to direct a creative, intelligent, hard-hitting news department. Four years experience as assistant director of such a department in a major southwest market. Need $800 a month minimum, to start. BM/E Box No. 770-2, Blue Ridge Summit, Pa. 17214.

Third phone beginner looking for first job. Anxious to get started. Resume and tape on request. Write Robert Banks, 234 E. Lincoln, Woodburn, Oregon.

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COLLEGE GRAD majoring in TV production. Training in all studio operations. Write for resume. Ted Goldschlager, 55 Winthrop St., Brooklyn, N.Y. 11225.

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POSITIONS WANTED (cont'd.)

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Gates Phasor, DA-2. 5,000 watts, 1280 khz four tower, 52 ohm input, 64 ohm output. Good condition. Presently in service. Available in near future. Best offer. Approximately 1,000 feet 64 ohm, 7/8", rigid transmission line. Cut into four sections. $1.50 per foot. Also rigid sampling line. Contact Carl A. Fosmark, Director of Engineering, Radio Station KTLK, 1165 Delaware, Denver, Colorado, 80204 (303) 222-4811.

EASTMAN 285 like new (50 hours) 16mm Television Projector with magnetic sound, flywheel accelerator, automatic lamp changer, reverse kit. 3½" lens—$7,500.00. GENERAL ELECTRIC TV-110 remote servoed light control, never used—$1,000.00. DYNAIR TX-4A Television Modulator, Channel 3 like new—$600.00. Ambassador College TV, 300 W. Green St., Pasadena, Calif. 91105, phone (213) 577-5400.

Immediately available, large quantity 3M 399 or Memorex 78V used tape. Low passes, 27 minutes usable tape per reel, price includes metal reel and shipping case. $37.50 per reel in quantities of 10 reels or more, quantity discount over 50 reels. Many other bargains in used television equipment. Write, wire or phone Ed Ries and Associates, 414 No. Alfred St., Los Angeles 90048 (213) 651-5080.

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3-RCA COLOR CAMERAS TK-41C. Updated to NBC Specs., includes "paint pots," 50' camera cables, lenses, dollies, tilt heads. Box 12, Ridgewood, N.J. 07451 (201) 444-0196.

FOR SALE—Gates 10 watt FM transmitter model BFE-10091.1 MHz. Includes complete set extra tubes. Gates FM-22 (2-bay) antenna. Total package, 1-yr. old, perfect condition, sacrificed, $1000 FOB. Write BM/E Box No. 770-3, Blue Ridge Summit, Pa. 17214.

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FROM THE EDITOR

Dissent Depends on Whose Ox is Gored

It's easy, and popular, to be a dissenter these days. It's rather hard to come up with workable programs that serve both the public's interest and that of the individuals or groups making up that public. When it comes to broadening our nation's communications capabilities, just about everybody is a dissenter of sorts because regulation of whatever kind curbs somebody.

As one listened to the many panelists and speakers at the recent NCTA convention, the wide spectrum of dissent became very apparent. The FCC's wide-ranging proposals to free cable, while at the same time protecting uhf broadcasters and providing a dividend for public broadcast was criticized in one detail or another from every quarter.

Major criticism of the new proposals centered around (1) the recommendation that local ads be substituted for distant ones on distant signals (2) the taxing of CATV systems to support public broadcast and (3) multiple- and cross-ownership restrictions.

Substituting local uhf station ads for distant ones to protect the local station has been criticized as too expensive for the uhf broadcaster. Opponents say the broadcaster would have to spend hundreds of thousands of dollars at dozens of CATV headends to achieve this. This argument is not entirely honest: expensive equipment is necessary but we can't imagine a situation where each broadcaster would feel he had to put his own equipment into every CATV system. The same equipment could serve all local broadcasters and a cooperative service can solve this.

Taxing CATV systems for public broadcasting's benefit is decried as a terrible precedent—next it will be the broadcasters that are taxed. In the meantime it's discriminatory. What are the alternatives? Assuming that public broadcasting can provide valuable national objectives, and we do, other means of revenue are a direct fee to viewers as is collected in Great Britain (inefficient), a tax on TV set sales (hardship on manufacturers) a levy on TV ad revenues (more discriminatory), or a direct congressional approporiation (unlikely in deficit years).

One virtue of the FCC public dividend fee—in addition to its reasonableness for carrying distant ETV signals—is that it's tied to preventing extortion in the form of exorbitant franchise fees paid to municipalities. Since many cable operators have willingly subjected themselves to this extortion, they ought to welcome a plan which would see some of this blackmail money returned to the TV programing industry.

Whatever the shortcomings of the ad substitution proposal and the public dividend tax, the solutions *are* attempts to bring about some compromise which is for the good of the industry *and* the public.

These benefits are less obvious when one considers the proposed limitations on cross ownership and multiple ownership of the various media. There are certainly some middle-sized communities that would get better service if the monopoly on media by one owner could be broken. But there is no general evidence to suggest that ownership limitations will provide any beneficial effects and there is every reason to expect minimal service from small operators—this is now an observable fact.

We can see no reason for ownership limitations on small markets. Cross ownership of independent TV and cable ought to be encouraged so that local origination can be supported. The large broadcasters ought to be offered several channels in the same market as suggested by Ex-FCC Chairman Minow.

But now we are dissenting! Our own biases showing?

James A. Lippke, Editor

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A quick reference to products mentioned editorially or in advertisements. Page number is listed first (light face type) followed by reader service number (bold face.)

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