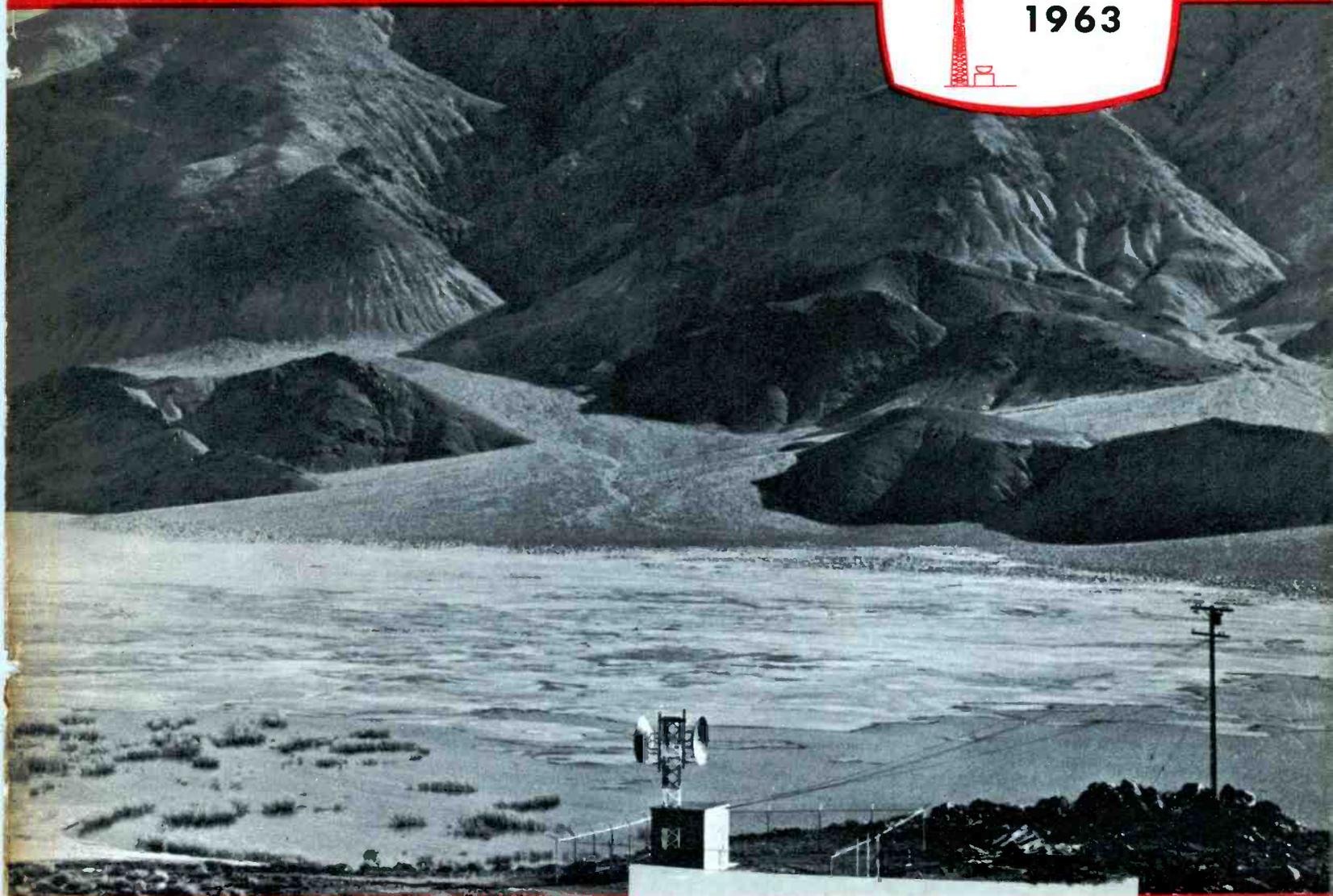


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IN THIS ISSUE

- STATUS REPORT — The Many Facets of CATV
- SEATTLE 1963 — NCTA Pre-Convention Report
- CCTV — Caring For Television Cameras
- SECTION 605 — Safeguarding Individual Liberty

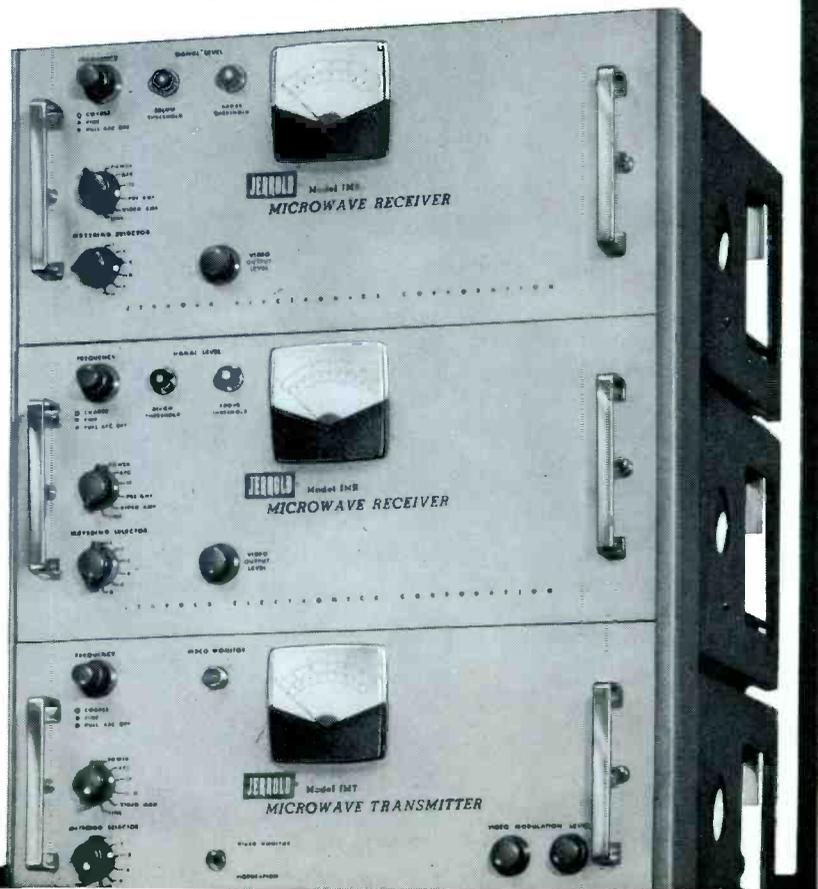
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1

NEW BROADCASTER ENTRY INTO CATV

WGN, Inc., of Chicago, Illinois has announced their intentions to purchase the Houghton-Hancock CATV system which is located in the Upper Peninsula of Michigan. Prior owner of this system and seller to WGN, Inc., was TelePrompTer Corporation.

In making the announcement, Ward L. Quaal, executive vice-president and general manager of WGN, Inc., stated that they were pleased to enter "into such a challenging new industry for it represents an opportunity to render an unusual service."

"As broadcasters with community-oriented programming always in mind, we think we can make a substantial contribution to this field," he added. "And while this is our maiden voyage in the CATV field, we hope to purchase or build other CATV systems in the future."

The Houghton-Hancock system now serves more than 2,100 subscribers on four channels. Two of these channels are brought in by the Upper Peninsula Microwave Company. Established in June, 1955, the system has been operated by TelePrompTer since August of 1961.

WGN-Televents, Inc., a wholly owned subsidiary of WGN, Inc., will operate the Houghton-Hancock system. Mr. Quaal is slated to head WGN-Televents, Inc., with Carl J. Meyers who is currently vice-president and manager of engineering, WGN, Inc., as vice-president.

WGN, Inc., a subsidiary of the Chicago Tribune, operates WGN-AM-TV, Chicago, and KDAL-AM-TV, Duluth-Superior. The Tribune Company also owns the New York Daily News, which operates WPIX-TV, New York.

Bill Daniels of Daniels & Associates. Denver, Colorado was the broker in the transaction.

**CATV
MATV
2-WAY
UHF-TV
Microwave**

CANADIAN BOARD OF BROADCAST GOVERNORS TO HOLD HEARING ON

In an unprecedented move, the Board of Broadcast Governors called for a public hearing to discuss the effects of CATV upon Canadian broadcasters.

In describing the reasons for the hearing the announcement appeared to indicate that perhaps some pressure had been applied by groups not in the CATV field.

"The Board has for some months now, been concerned with the effect of the distribution of television programmes by means of cable systems on the distribution of programmes by broadcasting stations. The Board's concern centers around the fact that broadcasting stations, as a condition of license, are directed by law to achieve certain national purposes. Distribution of programmes by cable system is not so directed. Thus, if the achievement of national purposes is threatened by the use of cable systems, the Board feels it should be in a position to draw attention to the conditions which create a threat and to recommend

such action as it deems necessary to the preservation of the achievement of the national purposes."

"In order to receive evidence, opinions, arguments and suggestions, the Board will hold a public hearing on the general subject of the relationship between the development of wired television systems and broadcasting, and broadcasting policy."

"The Board seeks representations from broadcasters. An opportunity would be given to operators of wired systems to make representations, if they wish to do so. The Board is hopeful that groups of citizens who are neither broadcasters nor operators of wired systems will contribute their opinions on the matters outlined in the Notice of Hearing."

"Because of the vital nature of this hearing in the whole area of serving the national purposes through the broadcast media, the Board is making arrangements to have the proceedings transmitted on both radio and television."

The foregoing announcement was accompanied by a Notice of Public Hearing that spelled out a number of specific points that the Board stated they were particularly interested in; (1) the relationship of CATV systems on the achievement of national purposes assigned to the broadcasting media by law; (2) the economic effect on broadcasters due to the existence and extension of CATV systems and the manner in which this affects the capacity of the broadcasters to serve the national purposes; (3) the conditions of copyright, licensing and operation of CATV systems and broadcasting stations as these affect the capacity of broadcasting stations to serve national purposes.

The public hearing is slated for June 4th and will be held in Ottawa.

VIDEO-COMMUNICATION JOURNAL

Combining Television Horizons and Communication Horizons

PUBLISHED MONTHLY BY HORIZONS PUBLICATIONS

Post Office Box 1557 • Oklahoma City 1, Oklahoma

Editorial

Now that we have reached mid-year and have started to feel rather complacent, we should take a peek ahead. To lead off with, to-date we've seen legislative meddling that is certainly not warranted as affecting the communications field.

In CATV, both the United States and Canada have governmental bodies that are seeking ways and means to control the operational aspects of this industry. The reasons are obvious, undue pressures are being exerted.

In the two-way industry, we are still experiencing the problem of inadequate allocations. Time and again the idea has been expressed that there is relief in sight but specific concrete answers have been few. Like many things we must contend with on a day-to-day basis, there is absolutely no cure-all. What we are going through now is the result of poor planning years ago. It won't be changed overnight.

For the future, we can only contribute the experience that has been gained over the past decade. Much else, we will probably have little to say about.

Looking ahead, we are facing an International Conference regarding frequency allocations throughout the world. What is particularly disturbing is the fact that there will be approximately thirty-three new nations participating, each with one vote. Just what might occur during this conference is incalculable. It is only hoped that we don't lose some valued allocations.

As effecting the availability of new frequencies, the advent of UHF television will certainly be welcomed. Apparently, many far-sighted individuals have recognized the potentialities of the UHF areas as demonstrated by the number of applications that have been submitted to the FCC for UHF grants. RLM

THIS MONTH'S COVER — Shows a microwave repeater station at Government Peak, California that appears to be in a valley, but the elevation is high enough to provide excellent line-of-sight without the need of tall towers for the antennas.

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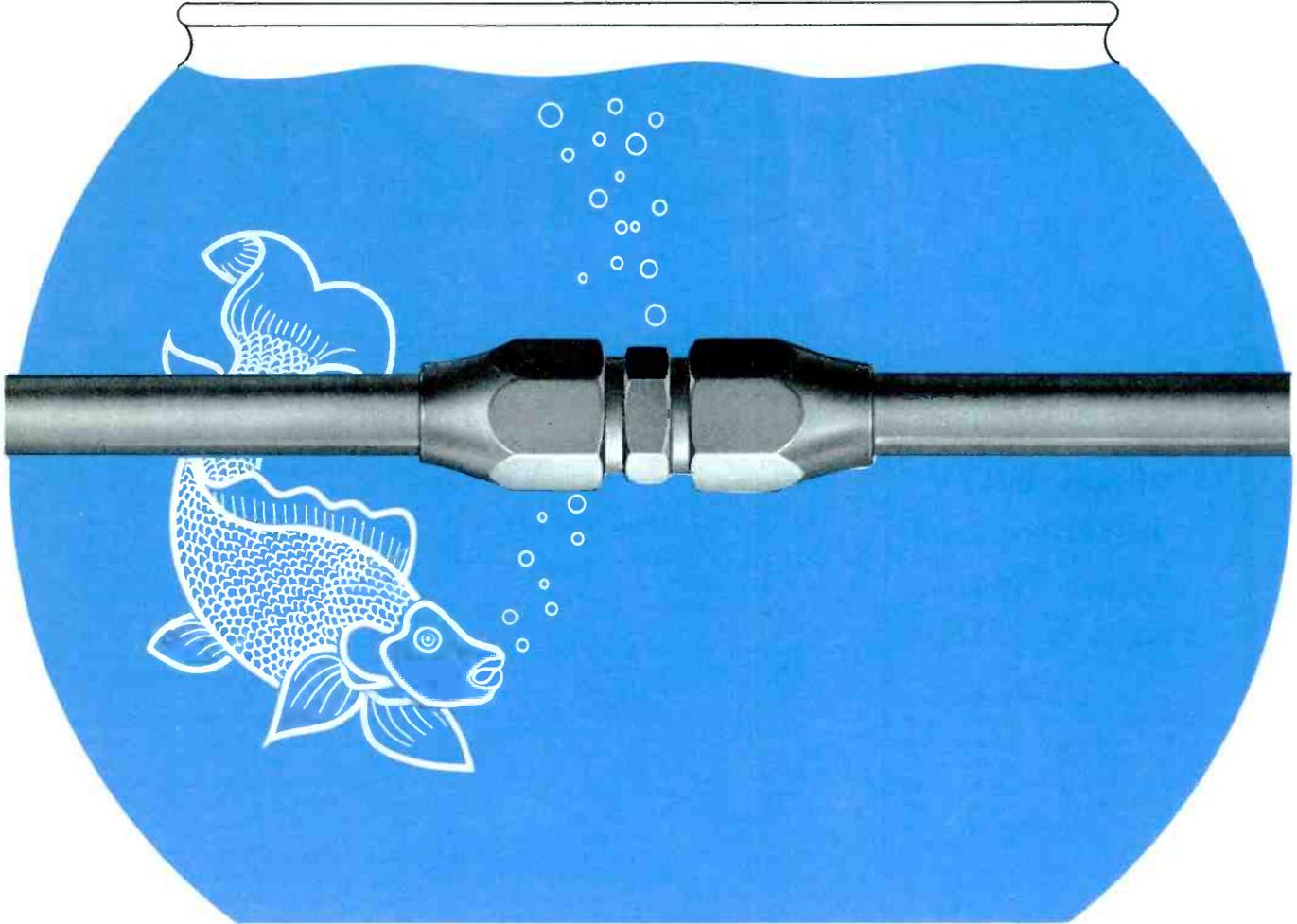
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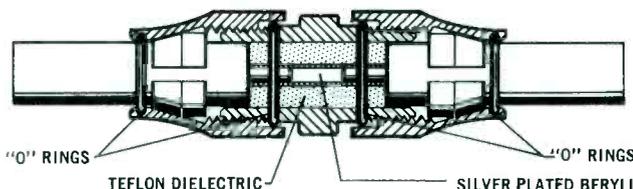
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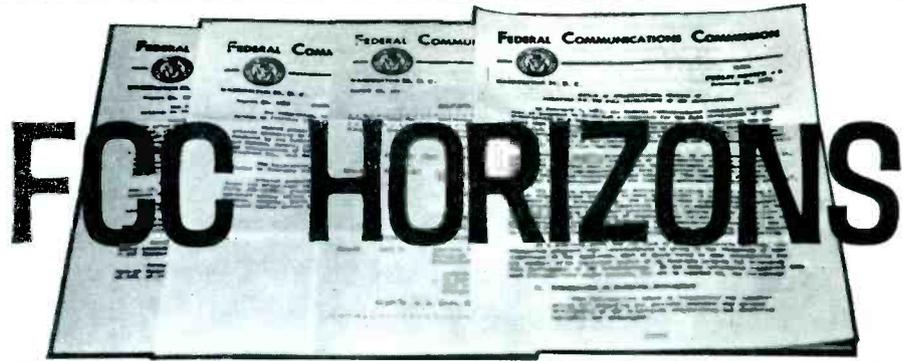
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FCC actions, applications and public notices reported here are a representative sampling of actions which the Publishers of Video-Communication Journal feel will be of interest to our readers. The listing is by no means a complete report of all FCC actions in or out of these allied fields of communications.

GENERAL ACTIVITIES

Following complete revision of the eligibility provisions of the Special Industrial Radio Service Rules, in 1958, the Commission provided for a five year amortization period for persons no longer eligible for that service. The expiration of the amortization period is coming up on June 15, 1963. Persons required to vacate the Special Industrial Radio Service should do so on or before that date. Most of these applicants have moved to another type of radio service, such as the Business Radio Service.

Report and Order, the Commission has finalized rule making Docket 14899 and amended Section 11.502 of the Special Industrial Radio Service Rules to allow certain licensees to use their radio facilities in connection with the gathering and processing of products grown for them by others, and to allow some other licensees to do likewise in their servicing of customers' heating, refrigeration, lighting, etc. equipment.

The American Trucking Association, Inc., Washington, D.C., through its counsels Jeremiah Courtney and Arthur Blooston, requests amendments to the rules so as to limit the use of frequencies now set aside for a two-frequency method of operation to the single frequency (simplex) method. The frequencies in the "mobile only" column (below) are available only for assignment with the companion base frequency for duplex operation:

BASE ONLY	MOBILE ONLY
mc/s	mc/s
44.36	43.86
44.38	43.88
44.40	43.90
44.42	43.92
44.44	43.94

By a Second Report and Order in Docket 14229, the Commission has amended Part 3 of its broadcast rules to relax a number of technical requirements for low power UHF television broadcasting stations. The changes are effective May 1.

- (1) Permit transmitters to be operated by remote control.
- (2) Permit operation with aural power of 1/10th the visual power.
- (3) Eliminate the requirement for specified reduction of lower sideband radiation for stations using transmitters with power outputs of 1 KW or less.
- (4) Permit unrestricted use of directional transmitting antennas for stations using transmitters with a power output of 1 Kw or less.

The Commission has proposed to delete from the Television Broadcasting service the use of television channel 37 (608-614 mc/s) within a 600 mile radius of Danville, Illinois. The dele-

tion would last until January 1, 1968. It was requested by the University of Illinois, which seeks protection in this frequency range so that sensitive radio astronomy equipment now ready for operation will not be hampered by the presence of stray rf fields emanating from earth.

James B. Sheridan has been named to head up the broadcast bureau of the FCC. In this capacity, Mr. Sheridan succeeds Mr. Kenneth A. Cox, who recently became a Commissioner.

Mr. Sheridan is well known to CATV field people for his visits into the western part of the country in the late 50's, as a staff aide of Commissioner Ford, to study the impact of CATV and translator services on local broadcasting operations.

Commissioner Kenneth A. Cox has announced the appointment of Allen Cordon to his staff, as his Legal Assistant. Mr. Cordon joined the FCC in 1956 and specialized in television translator matters. He participated in the Salt Lake City Translator Conference in 1961.

CATV MICROWAVE ACTIVITIES

By order, the Commission has designated for hearing the application of **Houston County Telephone Company**, to establish facilities in the Domestic Public Point-to-Point Microwave Radio Service near Dodge City, Texas, to transmit television signals to Colorvision Engineering Company, a CATV system in Crockett, Texas, 76% owned by the telephone company. The status of the applicant as a common carrier is not in question, only the question of a new type of service rendered by the carrier. Issues include the determination of the nature and extent of the interests between the applicant and Colorvision; whether Colorvision is a public subscriber; and the need for holding out to public subscribers of the Communications Common Carrier service proposed.

Ceracche & Company, Ithaca, New York has filed an application for a modification of an existing construction permit, to add two new video point-to-point communication points, namely Horseheads, New York and Montour Falls, New York. The applicant proposes to modify its construction permit to provide one channel of service to three customers.

Antennavision Service Company, Phoenix, Arizona has filed a construction permit application for an additional point of communication, utilizing all seven existing video channel frequencies, at Victorville, California, where the service will be provided to TV Cable Systems, Inc., a community antenna system serving Victorville.

Teleprompter Transmission of Kansas Inc. has filed an application for a modification of construction permit to provide four channels of video services to Kalispell, Montana via existing microwave facilities. Three channels of service are presently authorized, serving the Kalispell CATV system.

Northco Microwave, Inc., Laconia, N.H. has filed an application for construction permit to add new microwave video frequencies and one

additional point of service. The system proposes to carry the television signals of stations WNEW-TV and WPIX-TV, New York City, to a new customer at Mount Lenox, near Richmond, Massachusetts. From this station the signals of WPIX, WNEW and WOR-TV (also New York) will be provided to a new CATV system subscriber.

Teleplex Microwave Systems, Inc., Beverly Hills, California has been granted a construction permit to provide a sixth channel of video service to a CATV system in Willits, California. The new station to be added to the system will be KVIP-TV, Redding, California.

Southwest Texas Transmission Company, Del Rio, Texas has filed an application for a construction permit, seeking to relocate a relay station now near D'hanis, Texas to a point nearer to D'hanis. The permit also seeks to provide 5 video signals, in lieu of the present single channel, to a CATV customer in Uvalde, Texas.

Mesa Microwave, Inc., Oklahoma City, Oklahoma has filed an application for a construction permit to locate a video relay station at Barby Ranch, Oklahoma. The applicant proposes to relay two television channels from the existing repeater station at May, Oklahoma by means of a power split arrangement, to Barby Ranch. From there the signals will be fed to Beaver, Oklahoma where the Beaver Cable TV System will be a customer for the video-relayed programs of WKY-TV and KOCO-TV, Oklahoma City.

In an unusual twist to a microwave-video relay case submitted by a CATV system signal supplier, the Commission, by Memorandum Report and Order, denied the petition of **Black Hills Video Corporation** to amend its applications for renewal of licenses in the Domestic Public Point-to-Point microwave service. Black Hills sought to provide additional video relay service to a CATV customer in Scottsbluff, Nebraska. The FCC denied the petition to bring the Scottsbluff system into the picture, and stated that until such time as the City Council of Scottsbluff has granted a franchise to the CATV customer, the Commission won't consider the microwave service application.

Also by Memorandum Report and Order, the Commission (1) granted application of **Mesa Microwave, Inc.** for additional facilities at its licensed microwave video relay station at Paris, Texas, to relay the signals of TV stations KRLD-TV, WFAA-TV, KTVT, and WBAP-TV, Dallas-Fort Worth to a new independent CATV subscriber at Clarksville, Texas. The Commission denied the opposing petition of station KCMC, Inc., in Texarkana, Texas.

U.S. BROADCAST ACTIVITIES

United Artists Broadcasting, Inc. has filed an application for a new UHF television station on channel 65 in Cleveland, Ohio. The station would operate with 568 kw visual power from an antenna height of 610 feet.

At the request of **Gotham Broadcasting Corporation**, the Broadcast Bureau extended from April 3 until July 3 the commencement date for trial subscription (pay tv) programming by that Company's TV station (KCTO), channel 2, in Denver, Colorado.

The Commission has granted a construction permit for a new non-commercial educational television station to operate on VHF channel 13 in Fargo, North Dakota with an ERP of 105 Kw visual and an antenna height of 390 feet.

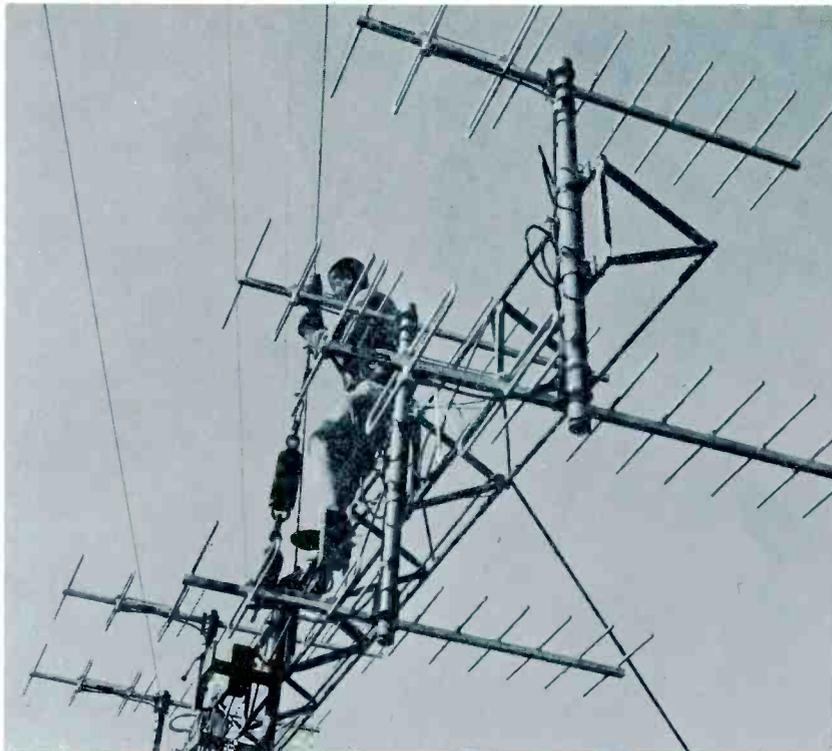
Application has been received for a construction permit for UHF channel 79 in Toledo, Ohio. The station would operate with 393 kw visual power from an antenna height of 1013 feet.

Application has been received from **International Panorama TV, Inc.**, Fontana, California, for a television broadcasting station on channel 40. Power of the visual carrier would be 318 Kw.

Application has been received for a new UHF television station on UHF channel 36 in Atlanta, Georgia. The applicant, **Supreme Broadcasting Company**, would operate with a visual power of 220 Kw from an antenna height of 540 feet.

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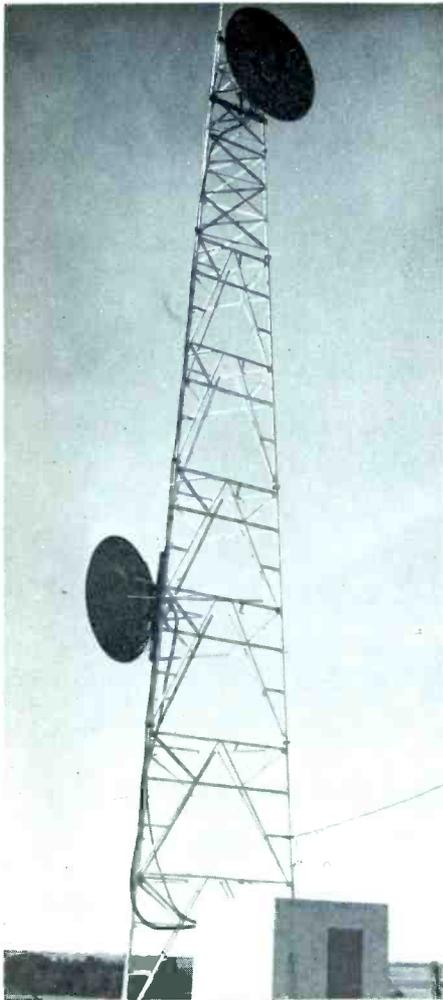
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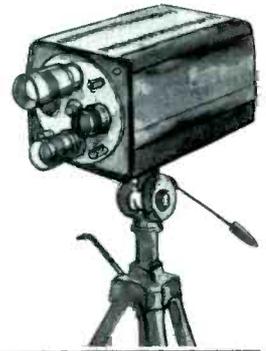
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SYSTEM HORIZONS



PEOPLE . . .

Tom T. Miller of Sheffield, Alabama has been appointed general manager of the 9,000 plus subscriber Muscle Shoals TV Cable Co., which serves the communities of Florence, Sheffield, Tuscumbia and Muscle Shoals City. The Alabama system is owned and operated as a part of the holdings of the H & B Communications Corporation.

Joel P. Smith has been named manager of the Community Operations Division by Jerrold Electronics Corporation Vice President and General Manager Robert H. Beisswenger. Mr. Smith was previously with Jerrold for 3½ years as the Promotion Manager for the Division he now heads.



Mr. Joel P. Smith

Also at Jerrold, **Joseph J. Kontuly** has been appointed Assistant Advertising and Sales Promotion Manager for the Jerrold Electronics Corporation. He comes to Jerrold from the Minneapolis-Honeywell Corporation where he spent 3½ years as Market Sales Promotion Manager.

Daniel Aaron has resigned as manager of the Jerrold Electronics Corporation Community Antenna Systems Operations Division, to join the Philadelphia based busi-

ness brokerage and management consulting firm to be known as Garfield, Musser and Aaron, Inc. Mr. Aaron was instrumental in forming associations between Jerrold and several important television broadcast groups for joint development of community antenna system properties. These included Triangle Publications, Inc., which jointly with Jerrold, will soon begin installation of a giant CATV system to serve Binghamton, New York.

Miss Barbara Loomis, officer of the Jerrold Electronics Corporation for the past 8 years, died unexpectedly in late April. Miss Loomis joined Jerrold Electronics on March 1, 1949 and was the ninth oldest employee in the corporation. Miss Loomis was assistant to Mr. Milton J. Shapp, founder of Jerrold Electronics. In 1955 she became an officer of the corporation with the position of Assistant Secretary.

All of those within the industry who have known and respected Miss Loomis' ability mourn her passing.

E. N. Nick Abdo has joined Davco Electronics, Batesville, Arkansas CATV supplier. Mr. Abdo will cover the states of Louisiana, Mississippi, Alabama and Georgia by Piper airplane.

Also new at DAVCO is **George Cernohorsky**, who is covering the states of Texas and Oklahoma, in his Beechcraft airplane.

This brings the DAVCO flying fleet to three with Jim Davidson's twin-engine Aztec. The firm installs, plans and sells CATV systems and equipment, and is a major supplier of the Entron line of equipment.

(Continued on Page 35)

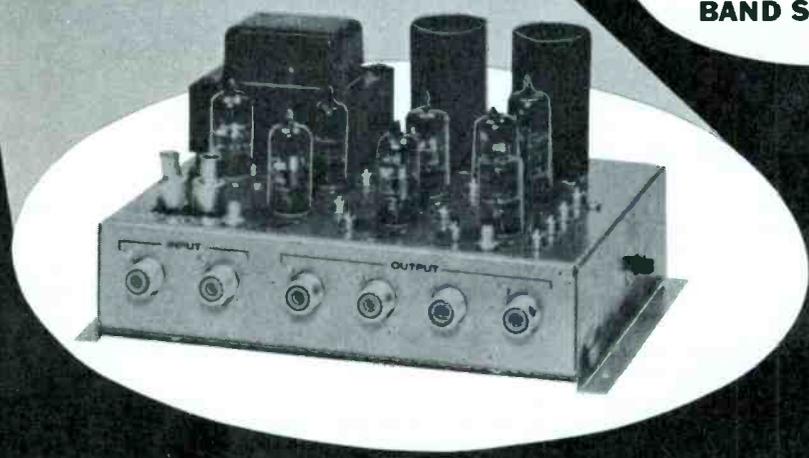
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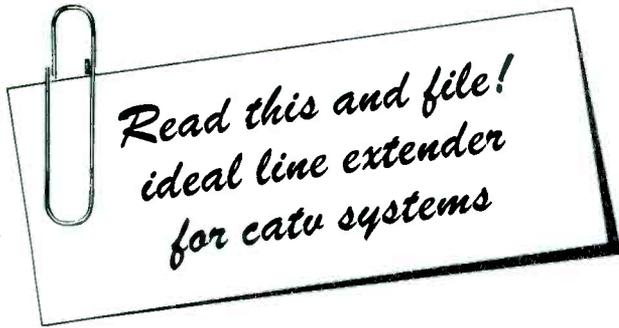
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BLONDER TONGUE

BROADBAND TV/FM AMPLIFIER

(54-108 mc—174-216 mc)
model MLA-FM

DESCRIPTION

The newest broadband amplifier in the well-known MLA-series is designed to deliver uniform, high level gain to both TV and FM receivers in CATV and master TV installations. It has all the requisites for top performance as a line extender in a CATV system, or as the head end of an MATV system — high gain, high output, low noise, exact channel equalization and reliability.

The MLA-FM consists of two independent amplifying sections: one for TV channels 2 thru 6 plus FM (low band), and one for TV channels 7 thru 13 (high band). Each of these amplifier sections has an individual gain control, plus a control for tilting the bandpass. The MLA-FM is ready for installation in most systems without need of further alignment; it is factory pre-set with the response of both bands tilted to compensate for 400' of RG-59/U cable.

The MLA-FM has many advanced engineering features which contribute to superior performance. Its exclusive patented broadband neutralization circuit in the high band provides higher gain-bandwidth. It offers highest gain in the high band, where cable losses are greatest. The cascode input circuits utilize frame-grid tubes for best signal-to-noise ratio and long life.

Important in CATV system operation is long term trouble-free performance. To accomplish this, Blonder-Tongue has generously derated tubes and components, insuring long trouble free life under continuous duty operation. Further, an exclusive transient-protected full-wave silicon rectifier circuit eliminates silicon rectifier burn-out caused by power line transients.

RELATED EQUIPMENT

MIXER/SPLITTERS, ATTENUATORS — Blonder-Tongue MX filtered mixer/splitters, together with FA attenuators can be used to balance signals being fed into the MLA-FM.

SINGLE CHANNEL AMPLIFIERS — Blonder-Tongue CB and MCS amplifiers can be used to pre-amplify very weak channels.

TUNABLE TRAPS — Blonder-Tongue MWT-2 (54-108 mc); MWT-3 (174-216 mc) can be used to attenuate any undesired frequency in the entire VHF/FM band. Traps provide at least 60 db attenuation with virtually no loss to the desired frequencies.

SPECIFICATIONS

GAIN — 33.0 db min channels 2 thru 6 and FM
40.0 db min channels 7 thru 13

RESPONSE — 54 mc-108 mc ± 0.75 db (Factory preset at 4.5 db tilt) 174 mc-216 mc ± 0.75 db (Factory preset at 2.0 db tilt)

GAIN CONTROL RANGE — 15.0 db channels 2 through 6 and FM; 18.0 db channels 7 through 13.

TILT CONTROL RANGE — 0-8 db tilt 54 mc-108 mc, 0-4 db tilt 174 mc-216 mc.

MINIMUM INPUT — 230 μ v (across 75 ohms), each video carrier, for T.A.S.O. Grade 3 (passable) picture.

MAXIMUM INPUT — (Sum of all video and sound carriers): 0.65v total low band; 0.32v total high band.

MAXIMUM OUTPUT — (at full gain)
for 0.5% distortion:—0.32v per channel—3 channels low band, 4 channels high band.
for 1% distortion:—1.3v total low band, 1.9v high band.
for 3% distortion:—2.5v total low band, 2.8v high band.

MONITORS — 20 db down from input, 20 db down from output.

IMPEDANCE — 75 ohm input and output. "UHF" type SO-239 connectors.

TUBE COMPLEMENT* — (1) 6ES8/ECC189; (1) 6DJ8/ECC88; (1) 6EJ7/EF184 frame grid; (2) 6CB6A; (2) 12BY7A.

RECTIFIERS — Silicon, transient protected.

PILOT LIGHT — Neon, long life.

DIMENSIONS — 9" w x 6" d x 5" h—Shipping Weight: 9 lbs.

POWER REQUIREMENTS — 117 volts 60 cps 55VA (0.44A) 3 wire line cord

FUSE — 1 amp, 3AG UL approved.

*extra long-life tubes available on special request.

FEATURES

- **SEPARATE LOW BAND AND HIGH BAND GAIN AND BANDPASS TILT CONTROLS** for balancing signal levels of different TV channels.

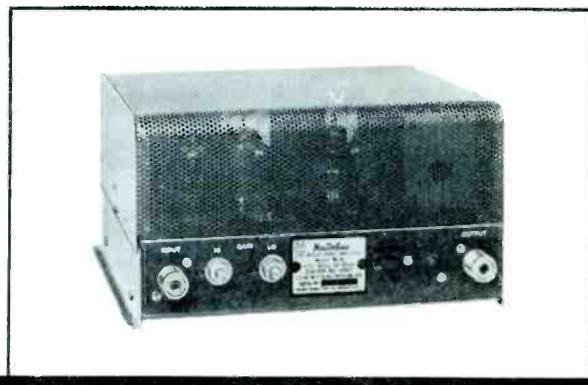
- **HIGHEST GAIN IN THE HIGH BAND**, where cable losses are greatest, for optimum operation and best system signal-to-noise ratio.

- **PATENTED BROADBAND NEUTRALIZATION CIRCUIT** in the high band — provides higher gain-bandwidth. (U. S. patent 2,761,023, Canadian Patent 535,392).

- **IMPROVED BANDPASS FLATNESS** at all gain control settings.

- **LOW-NOISE FRAME-GRID TUBES** used in cascode input circuits.

- **SIGNAL MONITORING JACKS AT INPUT AND OUTPUT** for routine maintenance checking and adjustment without interrupting service.



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community TV • UHF converters • master TV

CATV, ETV, CCTV, and STL

COLLINS OFFERS MICROWAVE FOR EVERY VIDEO APPLICATION



Your ability to handle more than one type of television application is becoming increasingly important to you. Educational TV, for instance, is a rapidly expanding field and — for the systems equipped to handle it — an important

source of new profits. Can you economically increase your present channel capacity? Could you go into ETV today and meet the stringent performance requirements?

Collins — for years a leader in the field of microwave transmission for video applications — has both the experience and the equipment to help you capitalize on the profit opportunities available to you in all the expanding TV fields.

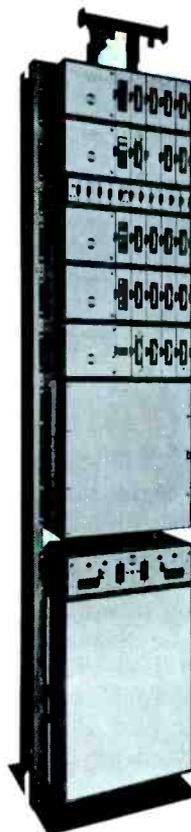
In equipment, Collins offers you a complete line. You'll find equipment for short and long haul systems. Microwave in the 6 KMC and 12 KMC frequency bands. Equipment with power from 50 mw to 5 watts. Receiver IF bandwidth of 15 or 25 mc. Complete ac or dc operation. Remodulating or heterodyne repeaters. And by specifying pre-wired racks, you can easily and inexpensively expand your Collins system for additional channels simply by adding stackable transmitters and receivers. Quite an economy factor when you consider the alternative — a whole new system!

As for experience, Collins has designed and built quality microwave systems for varied video applications in all parts of the country. Before you invest in microwave for your application, let us show you what our experience and complete equipment line can do for you. In economy. In systems flexibility. In reliability. Call or write us today.

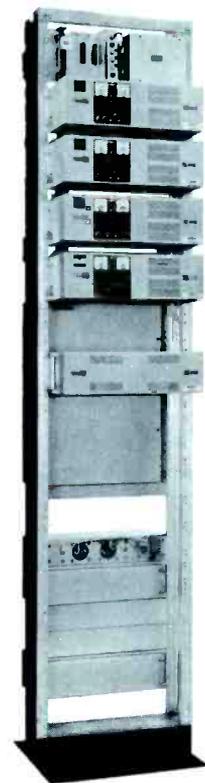
COLLINS RADIO COMPANY • Microwave Marketing Division, Dallas, Texas • Area Code 214, AD 5-9511 • International Division, Dallas

SPECIFICATIONS:

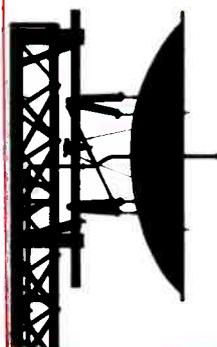
FREQUENCY	POWER	IF BANDWIDTH
5925 to 8400 mc	100 mw	15-25 mc
	1 w	15-25 mc
	5 w	15-25 mc
10,700-13,200 mc	50 mw	15-25 mc
	500 mw	15-25 mc



MW-106D RF Heterodyne



MWV-601B Microwave RF Equipment



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Perspectus 1963 -- The CATV Industry



By R. B. Cooper, Jr.

Publisher, Horizons Publications

It is a favorite trick of the non-CATV (broadcasting) trade press to banner-line in their June issues one or more features on the subject of CATV.

Their reasons are obvious. To those not daily concerned with the growth of our industry, the one time each year when CATV does become news is that period that coincides with the annual National Community Television Association (NCTA) convention.

To those observers outside the CATV world, the meetings and gatherings that take part during the annual convention provide a convenient means of wrapping up in a single issue all that they consider objectionable, and commendable, about our industry.

In sheer self-defense, then, Video-Communication Journal presents these few lines of editorial thought on the status of CATV today.

To be sure, as we deal with CATV problems and solutions daily, there cannot be a complete discussion of all facets of our industry within the scope of one report.

But to be equally exact, there can be brought forth a few objective comments of the exact nature of the problems before us this month as we wind our way to Seattle and our 1963 version of the annual convention and trade show.

To be wholly objective is difficult. After all, we are not un-biased outside observers. On the other hand, with insight and experience comes a realization that one paramount problem does and will continue to exist, until such time as the forces within the industry become cognizant of the individual roles

they play, and how these roles must be completely compatible with the stands of others within the industry, if the industry is to continue moving ahead.

In a sense, then, this report will by its intuitive nature be controversial. That is not my intention, but it is inevitable.

HISTORICALLY SPEAKING . . .

In the television broadcasting sphere of influence, 14 years is a considerable period of time. And it was some 14 years ago that the CATV fragment of the electronics industry began, in two widely separated and non-jointed sections of the country, Pennsylvania and Oregon.

Brought on partly by the Federal Communications Commission's freeze on new television broadcasting licenses, and partly by the human desire to make something of not such good quality better, the CATV world was born.

In the earliest days the CATV world was really the MATV world. Community antennas were in truth **master antennas**. Because of inherent equipment limitations, hill-top antennas served not communities, but rather sections of communities. And the equipment that was put into service in the early 50's was designed (if intended for distribution use at all) for apartment buildings, hotels and other relatively small master antenna concepts.

With particular regard to the hills of Pennsylvania the master antenna concept grew. And, despite what appeared to be progressive thinking on the part of fledgling master antenna system operators, there were numerous operators who continued to view their installations as **master antennas**, not **community antennas**.

Some 14 years later, today, approximately 3,000,000 U.S. and Canadian citizens receive their only multiple-channel television "on-the-cable," on systems numbering nearly 2,000 overall from Palm Springs, California east to Nova Scotia.

It was only natural, then, that an industry that was growing by the efforts of its own bootstraps would have problems. In many and in fact most cases the problems of one operator tended to be the problems of another operator.

Relations with television broadcasters, pole-line attachments, franchise agreements, common equipment and design problems, attempts to regulate the systems on a local, regional or state level, attempts to declare MATV-CATV systems public utilities — all were **common problems**.

So from the Pennsylvania center of CATV came the nucleus of a national organization. Bound together for mutual protection, the exchange of information and tips for handling local problems, the National Community Television Association was formed.

In the 50's the scope of MATV-CATV interests was common. A local citizen, perhaps connected in some way with electronics or broadcasting, TV servicing or the local general store, became the provider of multi-channel television. Each man, in his own sphere, was locally important, forward thinking and progressive.

On the national level the early founders of the CATV industry found common strength in their parallel existences, modes of living and, of course, their business interest — the distribution of multiple channel television "on-the-cable."

Late in the 50's a strange transformation began to take hold in the industry. The national association began to emphasize the advantages of automated billing, more sophisticated system promotion and operational techniques. The industry's leading broker in system sales, and management consulting, was finding an ever increasing number of customers for systems. Many of the new entrants into the field had not come up the so-called tough way; they had never been on a pole stringing cable, had never appeared before the city council to fight for an equitable franchise agreement, and had never witnessed the visit of broadcaster representatives that on rare occasions bordered on being hostile.

The new blood was older, as a rule, well established in some type of business that was providing them with more capital growth money than they could return-invest, and were entering CATV for one purpose — a dollar return on their investment that was un-paralleled in nearly every other form of legitimate business enterprise.

Was it any wonder, then that every sale of a major CATV system to "new-blood" was watched with apprehension, by the old guard?

Would the new CATV owner take an active hand in his system's management, or would he leave it to one of the growing firms specializing in automated CATV management? Would the new system owner be content to hold with the master-antenna community-television distribution concept, or would he

want to expand into closed circuit television and pay television?

In short, would the new owner become a force in the field? What course would be taken?

INTEREST GROUPS

As the 60's burst upon the industry, nearly every week brought news of a new system sale and the entry into the field of such names as Gene Autry, Charles Sammons, Bartel Broadcasting, and numerous others who had made their investment capital in fields seldom remotely connected with the CATV world.

Slowly, but surely, the complexion of the CATV world changed. A new NCTA executive president, William Dalton, signified the changes taking place. More emphasis on creating an image for an industry. More worry and concern about pending litigation fights who's very text could change overnight, the operating characteristics of the industry. And, a growing top-level awareness that every future step the industry took would have to be very carefully weighed against not only immediate side effects, but the side effects for a decade to come.

The pay television promotional boys had their fling. They recognized that a ready-built network of several hundred or even thousand towns, already receiving their viewing fare "on-the-cable" was an excellent place to start their campaign for a pay television network.

The closed circuit television origination promoters had their say too. "Why not," they asked, "put your cable to service carrying programs that **you yourself can originate** from the local city council meetings, high school auditorium or college classrooms?"

Both pay television and CCTV seemed like logical "next-steps" for the CATV industry to take. The entire CATV concept had been built on the foundation of providing more and better video viewing. More stations than the customer could himself receive, even with un-wieldy and expensive outside antennas. Better quality than he could ever hope to have from fringe-area off-the-air reception.

But there were arguments against any major expansion of CATV's concept. Strong arguments, that to this day have prevailed and essentially kept the industry within the frame-work of the original master antenna community distribution concept of the early 50's.

BUT THE FORCES GREW . . .

Traditionally, those operators who were lobbying for an expansion of the CATV concept into areas of CCTV and pay television were the new blood.

Equally traditionally, the operators who urged adoptance of a broader CATV concept have been the newer operators entering the field during the 60's.

The basic arguments presented by the **status-quo** group were and have been as follows:

(A) Pending litigation filed by a major film producer against two West Virginia CATV systems has yet to determine who has property rights to a television signal, once it has been broadcast. The

(Continued on Page 40)

SPOTLIGHT ON SEATTLE-

12th ANNUAL NCTA CONVENTION

Seattle, Washington is, without question, an excellent choice for the National Community Television Association's 12th annual convention (and trade show).

With the emphasis for the 5 day meet on "timely discussions of issues confronting the CATV industry," Seattle's progressive attitude will undoubtedly mold well into the business session climate.

Seattle as a city typifies all that is the northwest. From its soaring snow-capped mountains to the sparkling waters of Puget Sound, Seattle is a virtual bee-hive of CATV activity. It was a television signal from Seattle, then the only center of telecasting in the northwest, that sent men mountain-topping with television receivers and portable antennas from central Oregon north and east through the state of Washington, and north into British Columbia, in the early and mid 50's.

It was a television signal from Seattle that was first cabled into Oregon towns, the spark of the CATV industry in the west.

And it is in metropolitan Seattle today, with its irregular hills and low mountains, that several CATV systems currently exist under the towers of local television.

Oregon, as a state, is second only to Pennsylvania, it would appear, to total number of CATV systems. Washington is a close rival.

And it was in Washington that one of the first if not the first multiple-channel CATV microwave head-end was established.

CATV operators in the northwest, then, have always been among the most progressive and realistic operators in the nation. With nearly a decade and a half of heritage, they have a reason to be proud of their accomplishments.

And even their neighbors to the north, the Canadian CATV operators in British Columbia, have helped mold their strength. British Columbia CATV operators have cared little for the international boundary that separated them from their signal source. Vancouver, British Columbia is today the

home of several CATV systems that distribute Seattle area television signals to Canadian viewers, despite the presence now of local television in Vancouver. The Canadian CATV operators from British Columbia have always been active supporters of their southern neighbor's association.

Seattle itself has, of course, recently undergone a forced modernization program brought on by the recently completed World's Fair. The remnants of the fair still exist, and the transformation of the City as a result of this once-in-a-lifetime event are everywhere to be seen and enjoyed by the CATV operators who will be visiting the convention with their families.

NCTA PERSONALITY PARADE

There's an old saying in sporting events, "you can't tell the players without a program."

While any resemblance between the NCTA convention and a sporting event is purely fictional, the saying is true none the less.

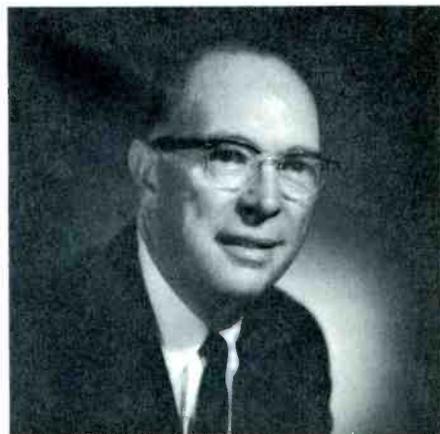
With an able assist from Don Andersson, Director of Information for the NCTA, we have assembled a short history on most of the members of the NCTA Board of Directors, and where available, photos of each. With this in hand we invite you to wander about the convention greeting and meeting each of these fine leaders in the nation's community antenna television industry.

NATIONAL CHAIRMAN



Glenn H. Flinn, Tyler, Texas is the hard working National Chairman for the NCTA. Glenn's tireless efforts have contributed measurably to the NCTA's growth in recent years, especially in areas of congressional recognition for the CATV industry.

NATIONAL VICE-CHAIRMAN



Fred G. Goddard should be especially proud to have you in attendance at this year's convention. This is Fred's home country! Fred entered radio broadcasting in the northwest in 1929, and has been in CATV since 1952. Currently, he is vice-president and manager of KXRO radio in Aberdeen, President of Harbor Television, and active as an officer in Sylvia Television, Eastern Oregon Television, Clatsop Television, Dalles Television and Port Angeles Television.

SECRETARY



Benjamin J. Conroy, Jr., Secretary for the NCTA has been the owner of the Uvalde, Texas CATV system since 1954. A graduate of the U.S. Naval Academy, he has served as the President of the Texas CATV Association and received the NCTA Advertising Award in 1961.

TREASURER



Jack R. Crosby's 36 years have been active ones. Jack hails from Del Rio, Texas where he is President of a CATV system. Jack also is active in CATV systems in Brackettville, Texas; Ilano, Texas; Marble Falls, Texas; Colorado City, Texas; Cisco, Texas; Ranger, Texas; El Dorado, Texas; Eagle Pass, Texas; Montpelier, Vermont, and he is Vice President of radio station KDLK in Del Rio.

DIRECTORS



Dean M. Devoe, a graduate of California Institute of Technology, Pasadena, has been active in California real estate since 1949. He is presently President of the Seven Hills Antenna Corporation, Tujunga, California and has served as President of the California Community Television Association.



Virgil G. Evans started his interest in electronics and broadcasting as a pre-WWII announcer for a radio station in Muskogee, Oklahoma. From there he

went to a post as Program Director for an Alexandria, Louisiana station and on as a manager for radio stations in Panama City, Florida and Baytown, Texas. He returned to Alexandria as a General Manager for KSYL radio in 1950, and entered CATV in 1959 as the manager for a system in Alexandria. He received the NCTA Annual Promotion Award in 1959 for his efforts in promoting his CATV system.



F. Gordon Fuqua is manager of the Bluefield, W. Va. CATV system. He attended Bluefield High School, V.P.I., and graduated from West Virginia University with a B.S. degree. He's served as a radio sportscaster and has been active in the insurance business.



Robert F. Regan is a native of Minnesota, where he founded the New Ulm TV Signal Company, Minnesota TV Distributing Company, Casco Construction Company. He has built CATV systems in Mankato, Jackson, Fairmont, New Ulm and Winona, Minnesota.



Irving B. Kahn entered the CATV world through a meteoric rise in the theatre world. Kahn worked his way through College as a publicity manager for a Tuscaloosa, Alabama theatre chain, and in a similar capacity for the name bands of Larry Clinton and Les Brown. He worked in the advertising department for 20th Century-Fox before the war, and returned to 20th Century to work with radio and television promotion after the war. He became President and Chairman of TelePrompTer in 1951, a post he still holds. As such, he directs TPT's large CATV holdings.



Martin F. Malarkey, Jr. entered business after the war as Malarkey's, Inc. in Pottsville, Pennsylvania, his birthplace. His interests include WRTA radio, Altoona, Harmony Hall, Cable Television Company (Wilmington, N.C.), Eastern Shore Microwave Relay Company, Onesto Hotel Company and HoTelevision Company. Mr. Malarkey was one of the original formulators of the NCTA and has been a key force in CATV from its very beginning.



Archer S. Taylor has been associated with the Aircraft Radio Laboratory, Wright Field, Ohio; National Bureau of Standards and the Paul F. Godley Company, consulting radio engineers. He has been a self-employed consulting engineer from 1947 to date. He is currently attached to Montana State University, Missoula, and he is an owner-partner of the first CATV system in Montana. Mr. Taylor has been instrumental in developing many laboratory concepts into practical CATV applications during his more than a decade in the industry.

(Continued on Page 37)

the well established and field proven Intec-Westbury line, and provide an outstanding source of CATV equipment

**INTEC-WESTBURY
CATV LINE UNDER
NEW OWNERSHIP**

MOUNT VERNON, N. Y. — The acquisition of the Intec-Westbury line of community antenna CATV equipment (of Westbury, L. I.) by the newly formed Westbury CATV Co., Mt. Vernon, N. Y. has been announced. The new company is a subsidiary of Electronics, Missiles & Communications, Inc. Dr. Byron W. St. Clair, EMC's President, indicated that the entire CATV operation including inventory, engineering information and manufacturing know-how of Intercontinental Electronics Corp. has been acquired. He added that the engineering and distribution know-how of EMC in the weak signal field would augment the well established and field proven Intec-Westbury line, and provide an outstanding source of CATV equipment and services.

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to use this most dependable, easiest to operate and maintain line.

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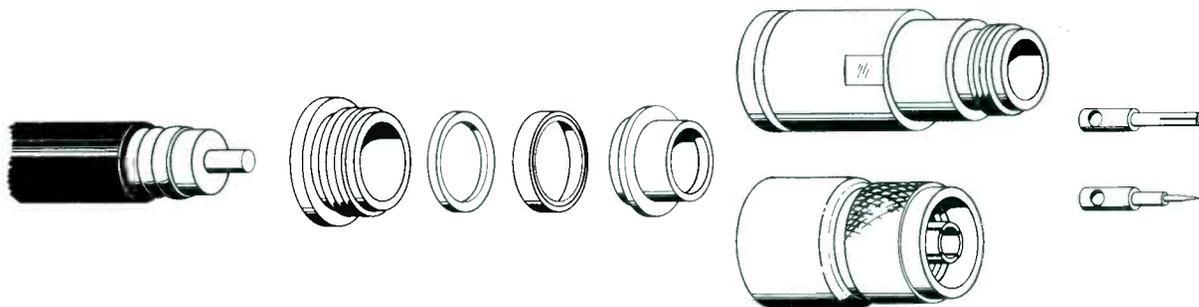
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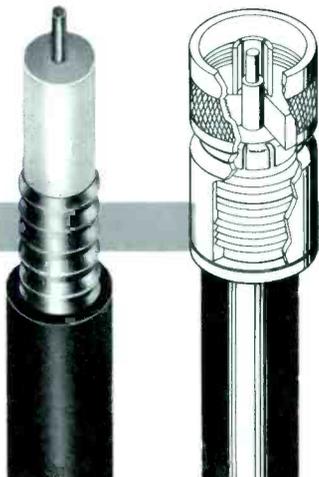
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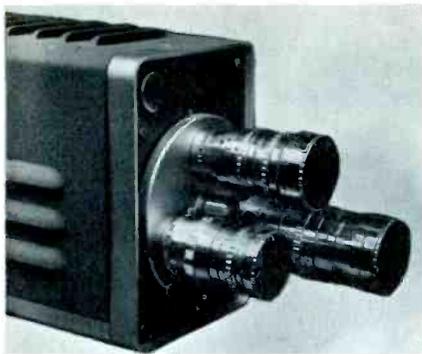
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Take Care of Your Television Camera

Russ Miller, Video-Communications Journal

The vidicon television camera is no exception to the rule when it comes to professional care of professional equipment. Maybe it would be better to say that the vidicon camera is a highly sophisticated piece of equipment employing techniques and concepts that require knowledge and care. Any way the scales are balanced, a precision tool like a television camera has its own rules-of-the-road that must be followed in order to expect long and continuing service.

In direct comparison, the vidicon television camera is as much alike a film camera as it is allied to the electronics field. It has lenses, iris, and a camera tube with a photosensitive "target". Therefore, the proper care that would be applied to these parts is the same type of care that is used when handling good photographic equipment. Scratching a lens by rough handling is something that just isn't done and by the same token the camera tube, being of a photosensitive nature, shouldn't be exposed to extremely bright light such as sunlight without stopping down the lens and using appropriate filters. To do otherwise will result in a permanent burn on the photosensitive surface.

Underscanning and overscanning a vidicon camera tube is something that must be watched. When dealing with a brand-new tube, it is of utmost importance that the sweep or scan be properly centered, linearity must be correct, and the proper height and width set up. If, with a new tube, the target is underscanned and full scanning is used *after* the photosensitive target has been aged there will be a visible area where the underscanning existed. Overscanning will produce a form of edge flare and generally produces a poor quality picture. Any time that the camera tube is disturbed either physically or electrically after it has burned-in, the sweep positioning must be restored to exactly where it was initially so the aged area will not show in the resultant picture.

Physical alignment of the vidicon is facilitated by the presence of an alignment pin on the base of the tube. The exact positioning point for this pin varies with the type and manufacturer of the camera, however, the proper point is usually described in the accompanying technical manuals. The relationship of the alignment pin to the alignment point must be maintained to allow restoration of the physical position of the tube if it should be disturbed. Without a reference point, it makes an easy job most difficult when it comes to setting the sweep back on to

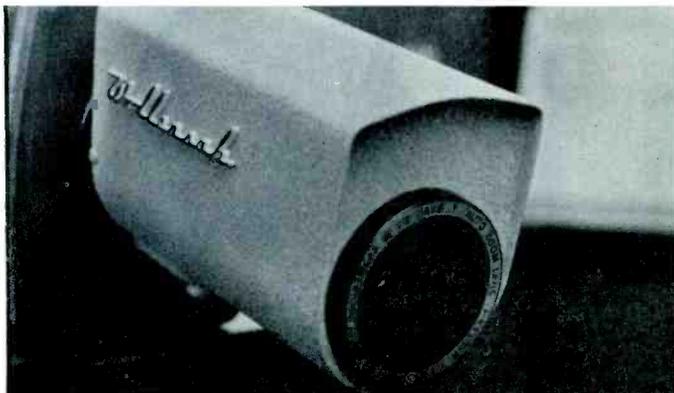
the aged part of the target.

Handle a vidicon with care. It is manufactured from glass and will readily break or shatter if improperly handled. As a general point, avoid carrying an individual tube or camera so as to place the vidicon face downward. There is the possibility that flakes from the oxide-coated cathode may fall down toward and lodge on the target surface giving a visible speck (or boulder) when used. This should apply even though some tubes have a protective ring to help eliminate this problem.

Use only as much beam current as results in the lowest possible setting considering picture quality and contrast. To do otherwise will result in decreasing the useful life of the vidicon. Also, use the necessary amount of light but keep the lens stopped down to a point where a satisfactory picture is obtained without too much light being introduced to the photosensitive surface of the tube.

Besides just observing some of the rules of the road when handling vidicons there are some special considerations that must be given to adjunct devices so a vidicon may be made to work within its specifications. The one most important part that falls within the category of an adjunct is, of course, the lens. Selecting an appropriate lens for a television camera requires a knowledge of the subject-matter to be televised.

In this day and age, almost any type of lens can be purchased at the corner photo shop. With this type of availability and latitude there is an unlimited number of uses that a television camera can be put to. However, only a specific lens will fit a specific job. If a lens of about 1-inch diameter was installed on a



Equipping a camera with a remote pan and tilt unit and electrically controlled Zoom lens allows one-operator operation.

vidicon camera for coverage of a scene that involved a single person with little consideration of the background and foreground, the subject would have to be a minimum of 18-feet away to fit into the vidicon field of view. This is a definite application and providing a room is available that is big enough, serves



Doing the work of many, the Zoom lens is a real help-mate.

the purpose for which it was intended. Now, if the single person in the scene were to hold up a small

item, several times smaller than the size of the person, it is going to be difficult to show the object with any degree of clarity due to its evident smaller proportions. The solution would most naturally be to move the camera closer to the object to show its detail and outline clearly. Using a 1" lens, it would be necessary to move the camera to less than five feet from the object in order to provide enough detail that the subject will be well understood by the viewer. This process is certainly very acceptable if the camera is mounted on a suitable dolly and not too many changes of this nature are necessary. Here, the point is more the convenience of operation and the maintenance of continuity rather than just a discussion of the lens.

A camera operator can become pretty tired dolly-ing a camera into and out of a scene especially when he is handicapped with a single lens selection. There is, of course, a limitation, for instance, with a 1" lens at a given distance there is only a certain specified field of view. There could very conceivably be instances where a camera could not be put in what could be considered an advantageous position to the scene or the subject and here it is a matter of having to use proper lens so that the proper scene set-up can be clearly shown. There are many lenses and lens sizes and they range from very small to very, very large sizes. There is, of course, a great deal of study involved in the science of lenses and it is suggested that for special problems a local photographic supply house be contacted for the necessary advice and aid.

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NCTA Convention



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TA5	.098	.450	.500	-----	.83	1.35	102
TA5-J	.098	.450	-----	.575	.83	1.35	132

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Considering lenses in generalities it is best to have a camera equipped with a lens that will cover wide-angle shots, a lens that will cover medium shots, those that are not much more than 30 to 40-feet from the camera, and a telephoto lens that will provide long distance shots. By the diligent use of these three types of lenses, the cameraman will have to do very little dollying of the camera around or into and out of a scene or subject. A little consideration could be given to the use of a zoom lens. This type of lens is useful for most any purpose and covers all the ranges that separate, individual lenses will, giving you all of the service of four lenses in one. Further, most zoom lenses are motor-driven and can be directly installed in place of 3 or 4 manually adjusted lenses. This one factor alone helps to reduce the problems the camera operator already must contend with.

While mentioning the proper handling of vidicons and lenses, the subject of proper lighting should be given some study for it is the light or the reflection of light that initially develops our video. In turn, light can make a great deal of difference in presenting a scene. In the field of lighting there are different types of light sources that will function well for all forms of scenes illumination, one is the incandescent lamp and the other most common source is the fluorescent lamp. It is proper to use either source or a combination of the two

Since the scene content has considerable bearing on just how many lights or what type will be necessary, it takes a little experimenting with various set-ups to gain the necessary know-how. There just isn't a set standard or rule-of-thumb that can be used. Some excellent information can be obtained by going through a few books on photography and photography lighting that will aid a great deal in making up a lighting system.

If at all possible, scenes should not be composed of too many dark colors or colors that run into the dark-grey and black region. Using dark subjects will require more light so the proper detail is shown. Any thing in the lighter color or white region is acceptable due to the better reflection characteristics of whites and the lighter colors. Watch out also for the color of room walls. Too dark a color will give the background a bad washed-out grey appearance and too light a color will reveal wall joints, nicks, and any dirt marks. Try a few pieces of cardboard painted with various colors you might have in mind and observe these on a monitor before making a concrete selection.

While dealing with the subject of lighting and colors, should a situation develop where an objectionable contrast is noticed it might well be due to the color sensitivity of the particular vidicon. If this should happen, proper correction may be made by using filters on the camera to decrease the abnormal contrast thereby improving the overall picture quality. Something else that will bother a vidicon is strong pin-point light sources or strong reflections such as from a mirror. These will produce an effect of "flare" and disturb the scene contrast. Avoid the use of, for instance, a match or cigarette lighter

while "on-camera" and use some dulling wax on mirrors and eye-glasses.

It has probably been noted that a lot of scenes do not televise in the same manner as they appear they should. This is the difference between our human eyes vs. the vidicon. Of all the items that fit into the "do not televise well" category, the prime example is people. The only cure for this situation is the use of make-up so the subject appears more natural or in fact to enhance the appearance of an individual.

Up to this point, most of the subject has been confined to the vidicon camera and nothing mentioned about the primary aid necessary to properly align and set-up a vidicon camera. This is the monitor, which is nothing more than a miniature television set equipped to handle video signals thereby being devoid of converter and i.f. stages. Selecting a proper monitor can be quite important as well as how it is connected to the overall system. A good monitor should be obtained, one that will offer the proper definition according to the specifications of the particular camera. A poor monitor is as bad as no monitor at all, a good monitor will be well appreciated and save a good deal of time when adjusting and servicing vidicon television cameras.



Monitor units serve as the 'eyes' of the camera.

Connecting a television camera to a monitor is a matter of stringing a coax line between the two. There is only one basic requirement, all monitors, if more than one are used, should be connected in parallel to minimize reflections and consequent distortion. Since a monitor is comprised of some of the same controls that vidicon camera has, the calibration and sweep positioning should be checked. Robbing a signal from the final video amplifier in an ordinary television set is about the quickest way of adjusting a monitor since most television stations telecast a test pattern at the beginning of the broadcast day giving you the advantage of a built-in calibration standard. Once this alignment has been accomplished, there should be a little or no need to make further adjustments to the monitor unless a major failure to the positioning circuits should occur. Whatever is done, don't slight the monitor for it is the only tool that will tell you what the vidicon camera is seeing. A vidicon camera won't necessarily see exactly the same thing that you do and primarily where it is only black and white device, some unfortunate contrast situations can exist and be shown on the monitor but are not detectible by the human eye.



The Advertising Media and CATV

by Charles Wigulow

REACHING THE PUBLIC

Advertising a community antenna television system is a necessity and an adjunct to the orderly growth of same. Much time could be devoted to proving this as a valid fact but there is hardly any need. Past proven success from the practical application of advertising by one-and-all is sufficient evidence that advertising works.

What kind of advertising are we talking about? First of all, the local newspaper is a prime consideration due to its advantage in offering the lowest cost per reader than most any other means. Another approach is the use of direct mailings which can be routed to reach those who live in new extension areas or those who are within the reach of a line. Or, you can use the mails to sample public opinion which might appear as being disconnected from the true sense of advertising, however, there is an advertising value here. Whereas the direct mail approach assumes what might be called "the personal touch," it is not as nearly economical as using your local newspaper.

Radio has a very important place. Nothing works as fast as a radio announcement. Not only does radio offer the necessary rapidity but it adds some professionalism that is hard to obtain by any other means. You might be pleasantly surprised to note the relative lack of resounding phone bells when radio is used to make special announcements pertaining to technical difficulties. Also, the fact that radio needs no print or mailing preparation places

a speedy tool at your fingertips that allows you to take advantage of new situations that might be immediately helpful to system prestige. After all, what you may want to say to the public can vary as fast as you find the need to say it.

PLACING YOUR AD

The geography of most CATV operations automatically places them in a most fortunate position. A majority of the systems in the United States are situated in small communities which is also the setting for a local newspaper. Such a local publication generally saturates the town with its circulation and provides the system manager with a means by which he may reach potential users of CATV. Unlike the large newspapers, the small town press is devoured word for word. Each event and announcement and the long lists of names have a very personal meaning. All of this compiles into one meaning—reader interest. Therefore, the local newspaper bears the kind of weight that is necessary to insure that any advertisement placed will ultimately be seen. For the community antenna television system this is a happy contrast with the more complete metropolitan daily where names are unknown to a large part of the readership. In the metropolitan areas, the average reader seems to follow only the larger stories, missing some of the basic content to seek sections that meet their special interests.

Ultimately the local newspaper is the best investment, ad-wise, based on past experience with the return per capita. Besides just ads, most of the small local newspapers are interested in what you are doing, enough so that you can cultivate a

friendship with the editor that will be of mutual benefit to the paper and yourself. This will give you a pipeline for news that will be of interest to the community.

WHAT TO SAY

News is just what the word implies. It should not be written so that it might be construed as advertising. In itself, news is important and can be very complimentary to an advertisement. After all, whether its news or advertising aren't you dealing with the same item but on a different plane?

Advertising is the one part of public relations that is most under your control. You can say what you want to say in the manner you wish to express yourself using the media that are reasonably available to you. For example, here in Southern New Jersey we are faced with three off-the-air signals, however, we can point out a number of advantages in advertisements that represent good selling points to pose to the potential subscriber. For instance, we point out that a roof antenna is a real hazard (we are hurricane conscious here). Another point is the advantage of a protected coaxial cable hook-up compared with the oft salt-damaged lead-in from the roof-top antenna. We also bring out the fact that we provide two channels to Southern New Jersey subscribers that aren't available otherwise. These particular channels are independent New York stations that carry the New York Major League Baseball games. In addition, some of the special documentary and entertainment fare can be seen only on these channels. These are but a few of the benefits that we bring to the attention of the public.



By Robert E. Tall

Our Man in Washington

Radio Applicants To Be Charged "Fees" Starting Jan. 1: The FCC has released a final version of its new plan to charge people money when they file applications for licenses for most types of radio facilities, starting January 1, 1964. The new plan, which has been in and out of the works for more than 12 years, and which has drawn heated opposition from virtually all radio user categories, looks like it will come into being as of the first of the year, barring reversal of the Commission's action by Congress, in the form of some type of resolution.

Congress took just such a step a number of years ago when it appeared that the Commission was moving close to adoption of a "filing fee" schedule. Without the affirmative action by Congress, however, radio applicants are now on notice to expect to start paying for the submission of their applications. It doesn't matter whether or not the application is granted by the Commission. The charges are applicable for the filing.

The plan adopted by the FCC by a 5-2 vote — Commissioners Robert T. Bartley and Frederick W. Ford dissented — is designed to recover about \$3,843,000 for the government — to be turned over to the Treasury Department — not retained by the FCC. There are a number of exemptions — for public safety agencies, noncommercial educational broadcast facilities, and novice amateurs.

The FCC said it will, before the end of the year, announce specific procedures for the submission of the money along with applications.

In its announcement, the Commission summarized that:

"The only exemption in the broadcast fees from the original proposal (of Feb. 16, 1962) is to eliminate non-commercial educational applications by tax exempt organizations. However, the fee for new commercial stations, major changes, renewals, assignment of license and transfers of control in the AM and FM services has been reduced from the proposed \$150 to

\$50, and for such TV applications from \$250 to \$100. For other broadcast applications, including TV translators and pro-forma transactions, \$30 is the fee. The fee for applications for change in call letters for stations in all broadcast services is \$20.

"In the safety and special radio services, exemption has been extended to government entities, police, fire, forestry conservation, highway maintenance, local government, state guard; operational fixed microwave applications filed for closed circuit educational TV service; also special emergency operations of hospitals, disaster relief organizations, beach patrols, school buses, non-profit ambulance services and rescue organizations; novice class amateur, RACES and disaster services and compulsory ship inspections.

"The fee for initial applications and renewal of amateur licenses (except novice) is reduced from the proposed \$5 to \$4, and to \$2 for amateur license modifications. Because of costly service involved, the fee for special amateur call signs has been increased from the proposed \$5 to \$20.

"Fees for citizens applications are \$8 instead of \$10 except those for Class A authorizations which remain at \$10.

"Fees in the other land mobile services and the aviation and marine services have been reduced from \$20 to \$10, but the fee for private microwave operational fixed authorizations is increased from \$20 to \$30, and application fee for renewal is set as \$4.

"The fees for common carrier microwave stations have been fixed at \$30 for applications, same as for private microwave applications, and \$5 for renewals.

"The fee for a construction permit in the domestic public land mobile services has been reduced from \$150 to \$100 and the renewal fee from \$75 to \$25. Additionally, the fee for a construction permit for individual user units in this service, and the rural radio service, is reduced from \$10 to \$5, with renewal application fee left unchanged at \$5.

"The schedule of fees for commercial operator examinations and licenses remains as proposed — \$5 for first class, \$4 for second class, \$3 for third class, and \$2 for commercial operator license renewals, endorsements, duplicates, etc., and for restricted radio-telephone permits.

"Applications in the experimental radio services are now exempt from fee."

Criminal Conviction Answer No Longer Necessary: The "criminal conviction" questions on FCC application forms 400 and 501 do not have to be answered in the future, the Commission has announced. (Form 400 is used by public safety, industrial, land transportation, and Class A citizens applicants, and Form 501 is used by ship radio station applicants.) The agency pointed out that the questions will be deleted when the present forms are reprinted, but that as long as the present supply of forms now in the field is being used, applicants may ignore the questions.

Single Sideband Transition For Marine Proposed: Proposed rulemaking "intended to bring about an orderly transition from double sideband radio-telephony in the maritime radio services (except Alaska) by Jan. 1, 1970," to single sideband, has been proposed by the FCC. Comments on the proposals are due July 1.

Shoran Extension Approved: The FCC has amended its frequency tables and industrial radio rules to provide for the use of Shoran equipment in exploring for petroleum deposits within 150 miles of the Oregon and Washington shorelines, including the Puget Sound area. Operation is to be on 230, 250 and 310 megacycles. Such authority has previously been limited to the Alaska, California, and Gulf of Mexico shoreline area.

President Asked to Consider Non-broadcast Needs: An urgent request that President Kennedy seriously take into account nonbroadcast radio communications in his next appointment

to the FCC—expected to take place upon departure of present Chairman Newton N. Minow—has been sent to the President by Chairman Victor G. Reis of the National Association of Manufacturers' Committee on Manufacturers Radio Use, and supported strongly by the Electronic Industries Associations Land Mobile Communications Section.

In a letter to the White House, Mr. Reis stressed the "urgent need for active planning to meet the dynamic growth requirements of all the non-broadcast radio services," which he said have proven their value in increased productivity and efficiency to such an extent that they have "permeated the entire fabric of our national economy," but which are being stopped short of their full utilization by government inattention.

The Bethlehem Steel Co. official called on the President to "consider the composition of a Commission that will devote 'equal time' and weight to all the major uses of the radio spectrum in the national interest." The nonbroadcast services, he declared, while "not in the public eye, surely rank on a level with broadcasting in the national interest," but their usefulness to the country "is already impeded or seriously threatened by a shortage of available frequencies," hampering the economic growth of the country.

EIA Land Mobile Communications Section Chairman William J. Weisz said his group expresses its "strong endorsement" of the NAM position "that when the next appointment to the Commission is made, consideration should be given to the significantly important area of nonbroadcast radio communications."

Mr. Weisz, a Motorola Vice President, declared in his letter to the President that "the public which is vitally affected by the actions of the Commission will benefit only by the appointment of a commissioner whose interest and experience cover the entire radio spectrum administered by the Commission rather than by the appointment of a commissioner with no radio experience, or whose experiences is limited to broadcasting."

Commenting on the two letters to President Kennedy, Washington communications Attorney Jeremiah Courtney declared that the letters "are the forerunners of many other actions that may be expected by industrial, commercial and public safety licensees" in their pursuit to have the FCC become better informed "of their problems and frequency requirements."

Mr. Courtney said the EIA letter to

the President, "representing a wide variety of licensees in all the mobile radio services," is subject to one interpretation only. All the nonbroadcast users have the feeling that the combined knowledge of broadcasting already accumulated by most of the present Commissioners is sufficient to enable them to deal effectively with broadcasting problems. What is lacking in the Commission in the judgment of the mobile radio users is some active and progressive planning for the requirements of the nonbroadcast radio services."

Utilities Ask Expanded Tone Usage:

The National Committee for Utilities Radio has petitioned the FCC for power radio service rule changes to expand the present secondary use of coded tones or impulses on mobile service frequencies above 25 megacycles. The requested changes, the Committee said, would provide "for an automatic, positive confirmation, or checkback, to determine if a correction of a failure, or of an abnormal condition which could lead to the failure, of equipment or service in the production, transmission or distribution facilities of the the licensee, has actually been accomplished."

EIA Section Plans Thorough Study of Spectrum:

Plans for a comprehensive study of the use of the radio frequency spectrum presently assigned to the land mobile radio services, using computer techniques, have been outlined to the FCC by the Electronic Industries Associations' Land Mobile Communications Section. The notice came in a request to the FCC that the agency permit the group to duplicate its complete set of computer frequency cards relating to outstanding authorizations in the public safety, industrial, land transportation, citizens, and common carrier radio services.

Section Chairman William J. Weisz commented that "It is common knowledge that there is an extreme shortage of land mobile frequencies in many areas. The (proposed) study is to confirm and support our present knowledge of the number of land mobile radio systems and units in specified geographic areas on each frequency assigned to these services and thereby enable us to gain additional information pertinent to the loading of these frequencies in any service in any area.

"From our story," he said, "could emerge a cooperative effort by the FCC, the users, and EIA, for developing plans and suggestions for improving the use of the land mobile spectrum."

Mr. Weisz explained that "The in-

tended study will basically comprise a series of classifying sorts to determine the nature of licensed base and mobile units both nationwide and in specific areas of interest. The study will develop as follows:

"(1) The United States will be divided into grids longitudinally and latitudinally of 60 miles on a side. (2) The first sort will be to classify all licensees by geographical location within the longitudinal separations across the country to indicate frequency congestion. We hope that this information will lead to conclusions on the possibilities of geographically sharing frequencies in any given area in any service.

"(3) The second sort will classify all 60 mile squares containing the FCC licensees latitudinally, thereby yielding land mobile licensees. (4) The cards within each 60 mile area will then be interrogated to determine the distribution of the FCC data service, frequency band, and usage. And (5) This data will enable the (EIA) Section to make pertinent determination of the usage of the land mobile frequencies in any or all areas."

Local Government Coordination Procedures Go Into Effect:

Specific procedures to be followed by participants in the five-association program for the issuance of letters of frequency recommendations to applicants for FCC licensing in the local government radio service have been released to local frequency coordinators, and have been in effect since May 1, when new Commission regulations providing for the routine coordination of the local government frequencies became effective.

Taking part in the cooperative program are the Associated Public-Safety Communication Officers, the International Municipal Signal Association, the American Association of State Highway Officials, the Forestry-Conservation Communication Association, and the Eastern States Police Radio League.

Under the new rules, the frequency coordination procedure requires that representatives of each of the four radio services involved—police, fire, highway maintenance, and forestry conservation—comment on each request for local government coordination submitted to the area coordinator in either of the services.

The procedures to be followed by a local government applicant, and the coordinators involved, are:

"(1) Applicants may submit applications for frequency coordination to any one of the public safety services recognized frequency advisory com-

mittees in their region or area.

"(2) The area chairman of the frequency advisory committee receiving the application for a local government frequency clearance should first complete his coordination procedure by carefully checking or selecting the frequency, RF power input, antenna gain, antenna height and type to be used, area to be covered, number of mobile units to be equipped, proximity of adjacent channel users, and other items pertinent to the request. The chairman shall then fill in two forms for each of the chairmen of the public safety services in the region or area for their concurrence. When there is a need for coordination with adjacent areas, each area chairman receiving a request for approval or concurrence will also be responsible for resolving adjacent area problems for the service he represents. His concurrence or lack of concurrence for his service will be for both his area and any adjacent area involved.

"(3) When the concurrence forms are returned to him or other appropriate coordination has been effected indicating approval by all chairmen in the region or area, he shall then complete the recommendation form and mail it to the applicant," who will then submit it to the FCC along with

his formal application to the Commission.

"(4) If clearance cannot be issued for the application as submitted, the applicant should be advised by letter, stating the reason clearance could not be issued and copies of the letter should be sent to other participating area chairmen."

The FCC, it is understood, plans to support fully the coordinators' requests of the applications for the detailed information called for on the coordination forms, if the applicant chooses to follow the advisory committee method of frequency coordination. Under the rules, of course, an applicant may alternatively elect to make his own detailed engineering showing of non-interference, without recourse to the cooperative coordination program.

New Comment Date On Common Carrier Proposals: At the request of the National Mobile Radio System, the FCC has rescheduled from May 1 to July 1 the comment deadline on proposed rules which would, with exceptions, restrict domestic public land mobile radio service dispatch stations, and rural subscriber stations, to the mobile radio reliable service areas of their associated base stations. Most of the comments filed by radio common car-

riers on the proposals have been strongly in opposition.

AT&T Opposes Waiver Request By Telecasters: Applications by two telecasting companies for FCC rule waivers to permit the use of frequency bands restricted to common carrier operation for intercity TV relays have been opposed by the American Telephone & Telegraph Co. The applicants, TV Colorado, Inc., of Colorado Springs and Frontier Broadcasting Co., Cheyenne, Wyo., are seeking permission to use 7050-7070 and 7100-7125 megacycles.

AT&T contended that the proposals "would restrict the operation of common carriers in the area providing broadcast TV pickup and studio transmitter link services."

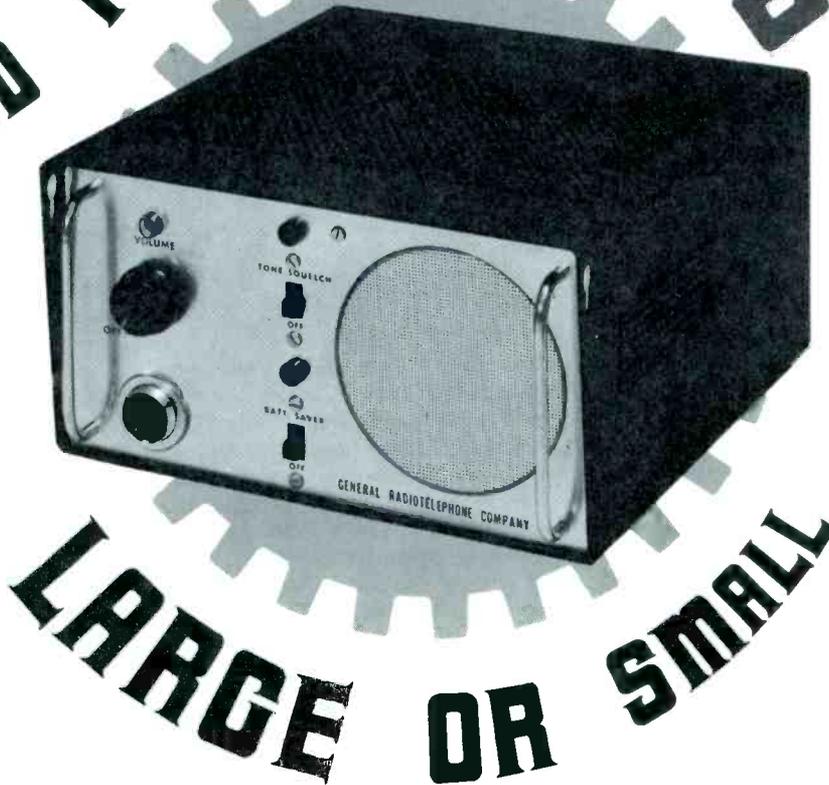
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Communications Act - Section 605

How it protects you and your Privacy

By Jeremiah Courtney

It has been said that a lawyer spends the first twenty years of his life trying to build his practice; and the next twenty trying to handle it. Most of the solid radio service agencies, which have seen the number of mobile units and base stations they maintain doubled, quadrupled and multiplied again, quite understand the depth of that observation.

For myself, well into that second "twenty," the wonderful exposure we have to so many brilliant clients in every phase of industry still permits the "think-pieces." But the articles requiring detailed case research prove increasingly difficult of personal accomplishment. It is with the deepest gratitude, therefore, that I preliminarily acknowledge that the legal research for this article is the product of my associate, Arthur Blooston*, without whose aid this series of articles on the meaning of Section 605 of the Communications Act could not have been possible.

Charter of Liberty

Now the Communications Act is not normally looked upon as a charter of individual liberty. But one provision of this otherwise prosaic Federal law of wire and radio communications has risen to these lofty heights.

This is Section 605, usually associated with the prohibition on wire-tapping — that "dirty business," as Justice Holmes characterized it 35 years ago.

*LL.B. 1948, University of Minnesota; LL.M. 1952, University of Chicago

Today, it is recognized that Section 605 is much more than a narrow prohibition on wire-tapping. To quote from a recent decision of a Federal appellate court, Section 605 goes:

"a long way towards safeguarding individual liberty, the right of privacy, and the insulation of one's home from Big Brother's intrusion of a police state. We must foresee and guard against the increasing danger to these rights as the electronics industry continues its development." *Carnes v. United States*, 295 F. 2d 598

How then does this section affect our daily lives, more particularly the use of our telephone or radio facilities? We know that wire-tapping is prohibited. But wire-tapping in this modern electronic age is but one of many ways of intercepting telephone communications. Are other methods of eavesdropping also prohibited? Can you record a telephone conversation for future use without permission of the other party? Can you monitor, on a shared mobile radio channel, the conversations of other sharers and report to the FCC any rule violations noted, such as superfluous or prohibited communications? Can you use the information gained from monitoring a shared channel to advance your own business? Can the telephone company monitor your calls to determine whether you are interconnecting your radio facilities with their wire-line plant in apparent violation of their tariff, and then discontinue your telephone service? Can any or all of these things be done without violating Section 605?

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These are all practical questions which may readily arise in the daily use of your telephone or radio transmitter. One would think that, after 30 years of litigation in this area, the courts have given definitive answers. But, while the case law under Section 605 is voluminous, the answers to these questions are by no means crystal clear.

One reason is that the courts decide only the narrow questions before them. Unless the facts of a new case fit precisely the facts of the decided case, the court rationale may not always fit the new situation. The new case may be distinguished, as the lawyers say, from those already decided. Another reason is that Section 605 is not a simple law. It is indeed one of the most obscurely drafted provisions of the Communications Act, an almost perfect example of the oft evidenced tendency of some lawyers to demonstrate the rigors of their professional standards at the expense of the reader's understanding. Or as the poet better put it:

**"It wasn't so much as wot 'e said,
As the narsty w'y 'e said it."**

Text of Section 605

Thus, Section 605 consists of four parts, all crowded into one sentence, more than half a page long. It is customary, however, even in a popular treatment of this kind, to start with the text of the law. (The paragraph numbers do not appear in the official text — they have been added here for the sake of clarity):

"Unauthorized Publication of Communications
"Section 605. (1) No person receiving or assisting in receiving, or transmitting, or assisting in transmitting, any interstate or foreign communication by wire, or radio shall divulge or publish the existence, contents, substance, purport, effect or meaning thereof, except through authorized channels of transmission or reception, to any person other than the addressee, his agent, or attorney, or to a person employed or authorized to forward such communication to its destination, or to proper accounting or distributing officers of the various communicating centers over which the communication may be passed, or to the master of a ship under whom he is serving, or in response to a subpoena issued by a court of competent jurisdiction, or on demand of other lawful authority;

"(2) and no person not being authorized by the sender shall intercept any communication and divulge or publish the existence, contents, substance, purport, effect, or meaning of such intercepted communication to any person;

"(3) and no person not being entitled thereto shall receive or assist in receiving any interstate or foreign communication by wire or radio and use the same or any information therein contained for his own benefit or for the benefit of another not entitled thereto:

"(4) and no person having received such intercepted communication or having become acquainted with the contents, substance, purport, effect, or meaning of the same or any part thereof, knowing that such information was so obtained, shall divulge or publish the existence, contents, substance, purport, effect, or meaning of the same or any part thereof, or use the same or any information therein contained for his own benefit or for the benefit of another not entitled thereto:

"Provided, That this section shall not apply to the receiving, divulging, publishing, or utilizing the contents of any radio communication broadcast, or transmitted by amateurs or others for the use of the general public, or relating to ships in distress."

Laymen may understandably take arms at such

verbiage. But the courts have not relished it either. The Supreme Court of New Jersey in a recent case found it necessary to explain the coverage of each subsection as follows:

"The first clause plainly applies to the employees of the (common carrier communications) system and it deals with the initial acquisition of the message. The second clause deals with the initial acquisition of a message by others through interception. The third and fourth clauses then deal with the subsequent use of the message, the third clause dealing with such use by personnel of the carrier while the fourth clause deals with the subsequent use of messages intercepted in violation of the second clause." *State v. Carbone*, 183 A. 2d 1, 6.

To this, it should be added that the first and third clauses are limited by their terms to interstate and foreign communications. But the second and fourth clauses apply to any communications; and the Courts have held that the proscription on unauthorized interception and divulgence applies to both interstate and intrastate communications. *Weiss v. United States*, 308 U.S. 329. Also, by its terms, Section 605 is not applicable to any transmissions intended for the use of the general public, such as broadcast transmissions or amateur communications.

Protection Runs to Means of Communications

Section 605 protects the means of communications, not the secrecy of the conversation. What is protected is the message itself throughout the course of its transmission by the instrumentality or agency of the transmission. *Goldman v. United States*, 316 U.S. 129. The protection of Section 605 obviously extends only to communications handled over licensed facilities by properly authorized personnel. Thus, the substance of communications transmitted over illegal and unlicensed facilities may be divulged and used for the benefit of the persons who intercepted them without violating Section 605. *Casey v. United States*, 191 F. 2d 1. Similarly, communications transmitted over a licensed mobile industrial facility by an unlicensed operator (at the time operator licenses were still required in the Industrial Radio Services) may be intercepted and divulged without violating Section 605. *United States v. Sugden*, 228 F. 2d 281. However, now that unlicensed persons may operate mobile facilities in the VHF and UHF bands in practically all the land mobile radio Services, the protection of Section 605 would extend to the transmissions of any person authorized by the licensee.

Legal Posture of Wire-Tapping Evidence

Section 605 is based on Section 27 of the Radio Act of 1927. The latter section, however, applied only to radio communications and, therefore, did not bar wire-tapping; nor was there any other Federal law prohibiting this practice. It was not until 1934, when the present Communications Act was enacted, that the Congress extended the coverage of this law to wire communications. There is little doubt that popular revulsion against the "dirty business" of wire-tapping was responsible for writing this prohibition into the Communications Act. While some states had statutes prohibiting wire-tapping, the lack of an express Federal statute on the subject was weakening the safeguards against civil liberties in the Federal Courts. Public attention was focused on this

problem in 1928 as a result of the famous Supreme Court decision in *Olmstead v. United States*, 277 U.S. 438, in which the majority of the Court held that wire-tapping as such did not involve an unlawful search and seizure within the protection of the Fourth Amendment of the Constitution. This is still the law. But Section 605 has taken the sting out of the *Olmstead* decision in the field of civil liberties insofar as wire-tapping is concerned.

Following the adoption of Section 605, the Supreme Court held in *Nardone v. United States*, 302 U.S. 379 and 308 U.S. 338, that evidence obtained from wire-tapping by Federal agents was inadmissible in Federal Courts, and would not support a criminal conviction. Subsequently, in *Schwartz v. Texas*, 344 U.S. 199, the Supreme Court held that the same type of evidence was admissible in a State Court where it had been obtained by State agents. Then, in 1957, the Supreme Court held in *Bernanti v. United States*, 355 U.S. 96, that evidence obtained by means forbidden by Section 605, whether by State or Federal agents, is inadmissible in Federal Courts. Here is where the law stands today on the subject of wire-tapping even though in 1961 in the case of *Pugach v. Dallinger*, 365 U.S. 458, Mr. Justice Douglas (with whom the Chief Justice joined) strongly dissented against the Court's continued adherence to *Schwartz v. Texas*. The rationale of the *Schwartz* case, the dissent said, had been undermined by the *Bernanti* decision; and the protection of Section 605 should be extended to all evidence no matter how obtained and no matter in what Court used, if the privacy of the individual is to be protected. It seems not unreasonable to expect that if the right case were now to come along, the view of Mr. Justice Douglas would prevail.

Unintentional Versus Planned Interception

Recently, a \$10,000,000 libel suit has been brought against a national mass-circulation magazine which published the substance of a telephone conversation overheard accidentally by a third party on his own instrument. It is well to note, therefore, that unauthorized interception need not be intentional or planned. Occasionally, an unintended "wire-tap" may occur. Though our telephone system is the best in the world, it is not 100 percent failproof. Once in a great while, through some freak mix-up, you may pick up your telephone receiver and find yourself an unintended eavesdropper on the conversation of two others. Suppose what you hear leaves no doubt that a crime is being committed. Are you free to disclose it to the police without committing another crime? We think not. If you have interposed yourself, wittingly or unwittingly, anywhere between the two parties to a telephone conversation, you have intercepted it without their authority. It would make no difference whether the conversation was local or interstate. The prohibition on interception and disclosure applies to both.

Would you be prosecuted for reporting such overheard evidence of a crime to the police? Almost certainly not. But neither could the police use your testimony to convict the criminals, at least not in any Federal Court nor in any state court with a state

statute patterned after Section 605. In such cases, reliance would have to be had, for a valid conviction, on evidence unrelated to what you had overheard. The prosecutor's evidence would have to be free from the taint of the "fruit of the poisonous tree," as the Supreme Court said in the second **Nardone** case.

Wire-Tapping Weakness of Section 605

As a ban on wire-tapping, Section 605 is not a panacea. In fact, there is widespread dissatisfaction with it. Attorney General Robert F. Kennedy has admitted in an article in the *New York Times Magazine* (June 3, 1962, p. 21, 80) that wire-tapping is practiced "by Federal law enforcement officers, at least some State and local governments and . . . by many private individuals." In the same article, the Attorney General deplors the fact that there is no effective way of preventing wire-tapping under the present law because the Communications Act, as the Attorney General views it, does not prohibit interception alone, it prohibits interception and disclosure. This permits Federal and State agents and private persons to wire-tap with virtual impunity. They know that to convict anyone of illegal wire-tapping, it is necessary to prove both the tap and an unlawful disclosure — a very difficult burden indeed. The Attorney General advocates a revision in the wire-tap law which would permit wire-tapping, under controlled conditions, where crimes affecting national security, human life, use of narcotics and interstate racketeering are involved. Under the bill proposed by the Department of Justice, either unauthorized interception or disclosure of wire communication would be punishable by a maximum penalty of two years in prison and a fine of \$10,000.

It will be noted that the Department of Justice wants a law which would clearly enable the Courts to punish an unauthorized interception or disclosure of wire communications. The present law speaks of interception **and** disclosure, posing very practical difficulties of obtaining a conviction when an interception alone is proved without disclosure. It is comparatively easy to prove a wire-tap. The methods of detecting wire-taps are as refined as those of tapping the wires. But proving a disclosure is another matter. It should be added here, however, that the Supreme Court, in the **Bernanti** case mentioned above, was not as certain as the Attorney General that interception alone may not be enough to constitute a violation of Section 605. The Court said:

"Because both an interception and a divulgence are present in this case, we need not decide whether both elements are necessary for a violation of Section 605."

Gambling Communications Prohibited

Be this as it may, the use of the telephone for illegal or socially undesirable purposes can be effectively restricted by legislation. Thus on September 13, 1961, the 87th Congress enacted Public Law 216 which provides penalties for the use of interstate wire communication facilities for the transmission of wagering information by persons engaged in the business of betting or wagering.

For the benefit of those readers who like to bet on the Alma Maters football team, the Yankees in the World Series or tonight's locally televised ball game,

it should perhaps be noted that the casual bettor in almost all states commits no crime, the state anti-gambling statutes invariably being directed at the professional bookmaker. As the New York Court of Appeals has said: "Curb the professional with his constant offer of temptation coupled with ready opportunity and you have to a large extent controlled the evil." (**Watts v. Malatesta**, 262 N.Y. 80). This was a case, incidentally, where the bettor had won \$95,000, lost \$37,000 and successfully recovered his \$37,000 losses without the bookmaker being permitted to off-set his \$95,000 losings to the bettor. (Kentucky, quite understandably, has decided the same facts differently.)

Public Law 216 is in terms directed against "whoever being engaged in the business of betting or wagering" and has practically eroded "lay-off" betting operations between bookmakers in different states as well as the acceptance by bookmakers of bets telephoned from another state. The reason is quite obvious: all long distance calls are ticketed by the telephone company and may be subpoenaed for court prosecutions.

In enacting Public Law 216, Congress exercised one of its prerogatives to over-rule the FCC which in the **Katz** case (6 Pike & Fischer RR 883) had held illegal a tariff authorizing the telephone company to terminate telephone service upon notification in writing by a law enforcement agency that the facilities provided the subscriber were being used for transmitting or receiving gambling information in interstate or foreign commerce in violation of Federal, State or local law. Having had a hand in the generation of this type tariff following an investigation, conducted as FCC attorney for the Board of War Communications during World War II, into the telephone and telegraph facilities used throughout the country for the transmission of gambling information, it was gratifying to note that Public Law 216 expressly authorized common carriers to terminate service upon the receipt in writing of notification by a law enforcement agency that a particular facility was being used in interstate or foreign commerce for gambling purposes. The law, further and commendably, protects the common carrier from damages for any act done in compliance with any such notice received from a law enforcement agency.

If I may stray from a moment from the subject at hand, the investigation I conducted for the Board of War Communications convinced me that the local police know the local bookmakers, the average bookmaker being as hard to spot as Wilt Chamberlain at Times Square in basketball togs. Public Law 216 now permits the local law enforcement agencies to put an awful crimp in the bookmaking business which cannot be long or successfully conducted without telephone service including daily interstate calls to obtain the fight and baseball odds and the football and basketball point spreads. But Public Law 216 has nevertheless produced no rash of notifications. In fact, if any reader knows of any such case, anywhere, the details would be appreciated.

(Part II of this three-part series will appear in next month's issue.)

The Silent Giant

—Staff Extra—

The German physicist Heinrich Rudolf Hertz probably never thought about television when more than 70 years ago he generated the first radio waves as microwaves.

Experimentation was the chief use for microwaves before World War II. Then the development of radar - basically the transmission of pulses of microwaves - opened a new era. As research continued, it was found microwaves indeed were useful for communicating on a point-to-point basis.

Today microwave systems span the nation. All types of long distance communication are carried by this technique including television, telemetry and control circuitry, standard channels, wide-band data circuits and radar relaying.

Users include military and governmental agencies, telephone common carriers, industrial concerns, city, county and state governments, community antenna television systems, broadcast studio to transmitter links, state-wide educational television closed circuit and broadcast networks.

In short, nearly every vital segment of industry and government has taken advantage of the many benefits that microwave provides. It is truly a silent giant in communications.

A basic microwave system consists of two or more terminal stations with repeater stations located where necessary. These repeater stations are normally 25 to 30 miles apart. Each station consists of the transmitter and receiver, multiplexing equipment as re-



Silent sentry in a 237-mile microwave system installed by Collins Radio Company is this unattended repeater station at Crestline, California. It illustrates the ability of microwave to penetrate bad weather conditions.

quired, an antenna, and a power source. Additional channels are made available for television signals by simply adding transmitters and receivers. Usually these additional transmitters and receivers of five or more beams may be combined to transceive off a single antenna system.

Microwaves are that portion of the radio frequency spectrum where the wavelengths are so short that they take on the characteristics of light. That is, they travel only in straight lines and can be focused into very narrow beams and reflected by metallic mirrors.

By focusing microwave signals into narrow beams, the energy is concentrated so that relatively low transmitter power in the order of 0.1 watt, 1 watt, or 5 watts is required for high quality transmission over long distances.

Since the beams are concentrated, many stations can operate in the same area on the same frequency without interference. This is a basic advantage in light of crowded frequency conditions.

But like light waves, there must be complete line-of-sight between transmitting and receiving anten-

nas. Allowance must be made for curvature of the earth and intervening obstacles such as trees and mountains.

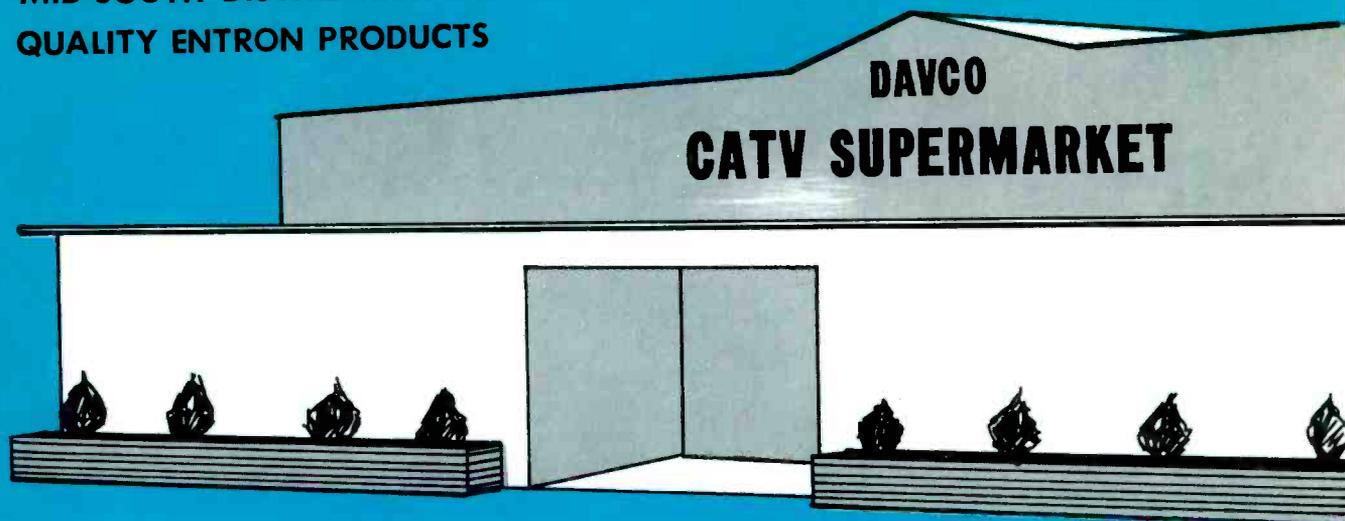
Over relatively flat land, line-of-sight clearance is obtained by erecting microwave towers ranging from 50 to 450 feet. Typical height is 200 feet for a 25-mile distance between microwave stations. These towers may be of either self-supporting or guyed types.

The latter is more economical provided sufficient land area is available for the guy wires. Normally, guy anchors are located at a distance from the base of the tower equal to 80 per cent of the tower height. The antennas may be mounted on building roofs, water towers or wherever permanent structures are available. The transmitting antenna may be mounted at ground level and directed up the tower structure to a reflector. This reflector redirects the beam to the next station, similar to a mirror reflecting light.

Microwave antenna systems, however, may not require high towers in order to obtain excellent long line-of-sight paths. Paths of 60

(Continued on Page 32)

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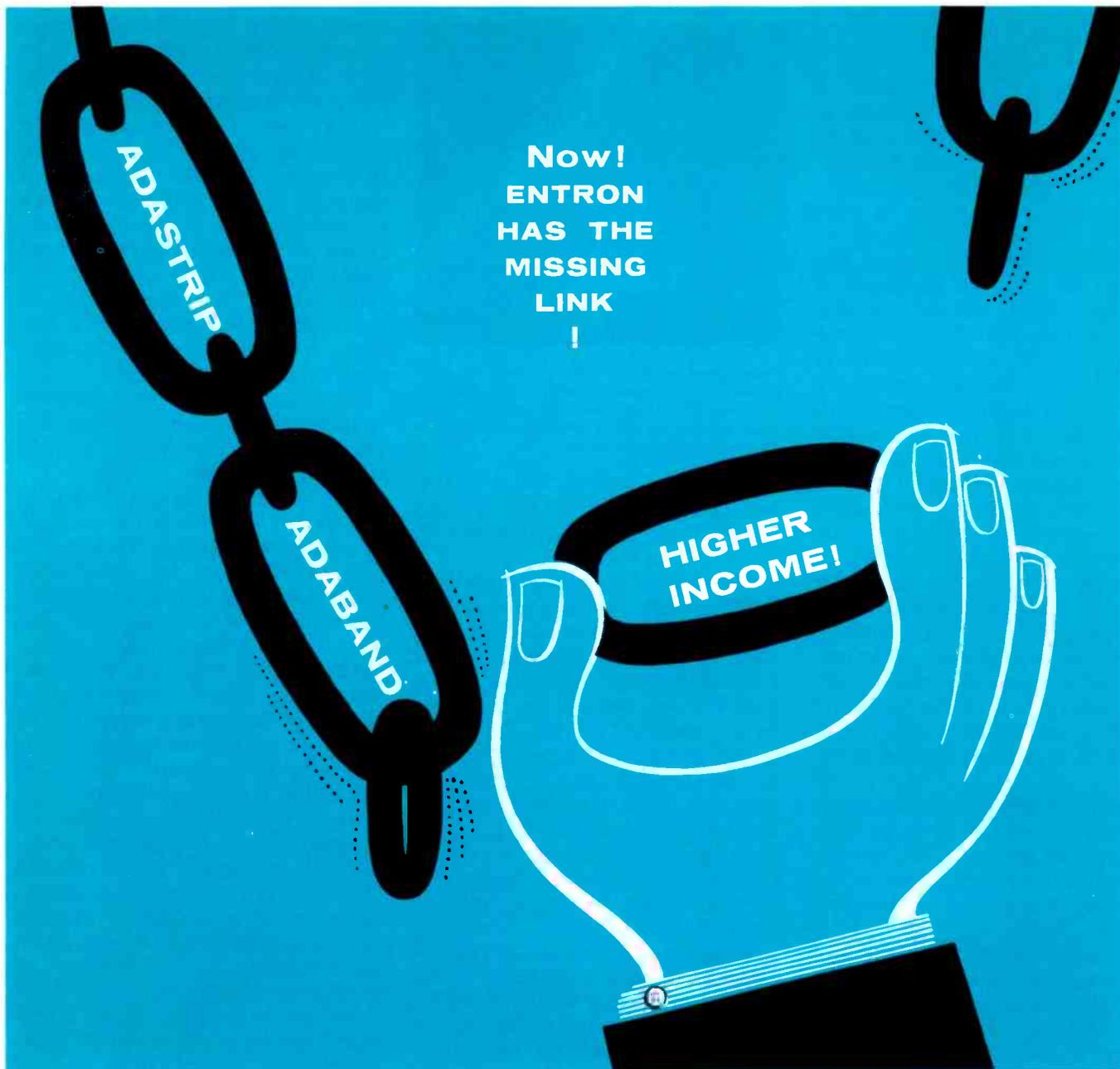
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The Silent Giant
(Continued from Page 29)

to 80 miles are quite typical in mountainous areas. This results in a more economical system (less repeater stations). One system installed by Collins Radio Company, for instance, exists over a path length of 175 miles.

Frequently used in rugged terrain is the passive repeater. A large flat metallic reflector similar to a highway billboard, it beams the microwave signal around or over obstacles. When a single billboard cannot bend the signal sufficiently, two or more are used. Billboards up to a size of 24 feet by 30 feet are not uncommon.

Repeater stations are added when line-of-sight conditions cannot be economically obtained by using towers or passive repeaters. These stations receive the signal and reamplify and retransmit it toward the next station. This process can be repeated almost indefinitely, provided that the quality of the basic microwave equipment is such that it can handle the heavy load.

The microwave frequency range is generally considered to be from 900 mc to 14,000 mc. The frequency bands at 4,000 mc, 6,000 mc and 12,000 mc have become the most popular.

Frequency bands available for video transmission by common carriers (telephone-type companies) are in the range of 4,000 mc, 6,000 mc, and 11,000 mc. Those available for educational TV systems utilized by state agencies are at 6,000 mc and 12,000 mc. Where the path length is short or where spur requirements exist from the fundamental backbone system, the Federal Communications Commis-



Snow-capped peaks of California form the background for this repeater station. The mountainous area offers the advantage of ready-built tower heights for the line-of-sight requirements of microwave communication.

sion usually prefers that the system operate at 12,000 mc, so that frequencies will be conserved in the 6,000 mc region.

Television broadcast stations may install studio transmitter microwave links in a frequency band at 7,000 mc. Common carrier frequencies are available when CATV operators can be classified as a common carrier. However, under many situations they cannot be classified as a common carrier and must use the 12,000 mc frequency region. In fact, it is possible for any business to obtain microwave licensing for television relaying in the 12,000 mc frequency range.

Primary advantages of microwave over coaxial, wire or other type transmission systems are economics and higher reliability.

Usually microwave is more economical when distances of two miles or more exist between where the signal is transmitted and where it is required for distribution. However, there have been instances when distances of several hundred feet could be tra-

versed more economically with microwave than cable, notably in cities where the cost of cable installation was more expensive.

The new fully transistorized microwave is also more reliable than cable. And the equipment is designed to operate from storage batteries which are continuously recharged to provide uninterrupted operation. With the equipment concentrated in microwave stations, maintenance is confined to a few locations as opposed to the complete maintenance of cable.

Microwave is virtually immune to inclement weather since the only exposure of equipment is the antenna system itself.

The major concern in designing microwave systems is the problem of microwave fading. This is the process whereby the microwave beam is split by atmospheric conditions into more than one path. The split beam produces a phase differential at the receiving antennas. When the phase relationship is such that the signals arrive out of phase, severe cancellation can occur which reduces effective power input to the receiving antenna.

This is normally overcome by designing into the system sufficient "fade margin" in the order of 30 to 40 db. This permits adequate reception on a temporary basis if the signals are reduced to as much as 1/1,000th or 1/10,000th of normal receive power.

Where the signal must travel over large bodies of water or highly reflective land surfaces such as deserts, multi-path fading may occur from the reflected surfaces. By carefully choosing sites and proper location of antennas, such fading can be avoided by allowing an obstacle to break up the reflective path that may potentially exist.

If this cannot be done, space diversity may be utilized where more than one antenna at a location is used. If these antennas are properly spaced, one antenna will have a good signal when the other antenna is having fading cancellation problems. Receiver combining is used so that the signal from the best receiver is utilized and the poorer signal is either disregarded or de-emphasized.

Another technique used when the signal experiences multi-path



Reaching up and over through the use of towers ranging from 50 feet upwards to 450 feet is not uncommon. This is a New Mexico desert station.

fading is called a frequency diversity system. In this case duplicate equipment is utilized whereby two transmitters send the same information at two different frequencies to their respective separate receivers. As the wave lengths of the frequencies are different, when one is experiencing the problem of cancellation at receivers, the other frequency is not. Like space diversity, the best receiver output is chosen.

Bad fading conditions exist over large bodies of water such as the ocean or in coastal regions. Here fade margins must be higher and occasionally space diversity or frequency diversity techniques are required to produce a highly reliable system.

First step in acquiring a microwave system is to contact a supplier. The manufacturer's sales engineer analyzes feasibility and the best approach to solve the user's communication needs. If necessary, the sales engineer visits terminal locations and potential repeater sites.

The sales engineer then provides rough price estimates for a microwave system. Next a budget estimate is prepared based on a study of available U.S. Geodetic topographical maps to ascertain tower height and repeater station requirements.

Equipment prices including buildings and towers are accurately estimated and presented with this budget estimate. Accuracy of this estimate to actual cost of the system is usually within 90 to 95 per cent. No charges are made by the manufacturer for these estimates and services.

The next step in obtaining a professional microwave survey is to ascertain exact tower heights, antenna sizes, passive reflector sizes and locations of all stations, towers, and passive repeaters. The cost for this survey, which is usually performed by the manufacturer, ranges from \$15 to \$25 per path mile. This final survey report is complete, permitting any manufacturer to quote a firm price for the complete system including buildings, towers, equipment, and if so desired, installation and maintenance.

The survey report also provides all technical information required for submission by the owner of the equipment for an FCC construction permit. FCC construction permits are required before any antennas, towers, or buildings can be installed. If legal assistance is required for proper justification and submission for FCC construction permits, these services may be obtained for a nominal fee from attorneys

who practice in Washington, D.C. before the FCC. Only one construction permit is required per station regardless of the number of transmitters and receivers utilized.

The FCC then analyzes the request for a construction permit for proper legal justification and technical content. If the submission is proper, the permit is granted.

Formal FCC station licenses are applied for once the equipment is installed and operating. The license replaces the construction permit as legal authorization to operate a microwave system.

Once firm price quotes are received, an order is placed for a system. After the equipment has been assembled and unit tested, final system tests begin. This is usually 90 to 120 days after receipt of the order. Many companies, in systems testing, operate all stations in a simulated manner the way they will operate in the installed system. The customer's personnel — the engineers and technicians who will be working with the new system — are then invited to the manufacturer's factory to witness the final tests.

One major supplier of microwave equipment, Collins Radio Company, provides without charge one or two - week microwave training schools for these individuals. These classes are held at the Collins Radio Company plant at Dallas, Texas. This particular type of schooling is set up to provide the user's technicians with adequate information to enable the proper maintenance of microwave systems.

After acceptance of the equipment, it is shipped to site locations and installed either by the user's personnel, with the assistance of a qualified manufacturer's representative, or by the manufacturer alone. The system is then tested again for proper operation.

Though the microwave industry is relatively new, it has outgrown its infancy. Today, in this era, the industry is rapidly approaching a maximum degree of reliability possible under present licensing laws.

The possibility that equipment will not perform satisfactorily is very remote. This makes it an even more important means of communication.

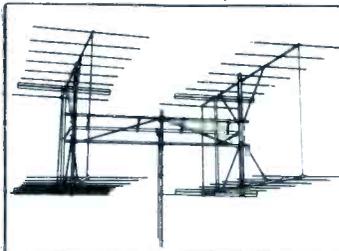
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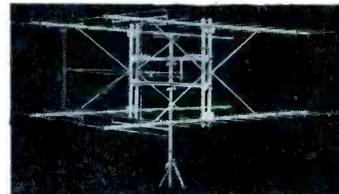
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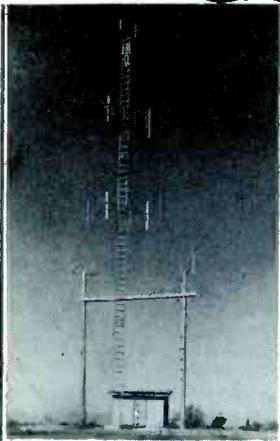
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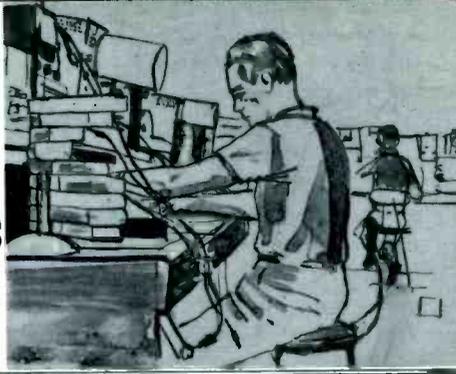


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the unit, with measurements from zero and one volt on the microvolt scale, and -33 to plus 60 db on the decibel scale. Accuracy is plus or minus 1.75 db with the 75 ohm unbalanced input.



The unit measures 8 inches by 4 1/4 inches by 2 1/2 inches. Net price is \$295.00.

Stevens-Evans, Inc., a subsidiary of Beckman Instruments, Inc., has introduced a new line of solid state precision digital voltmeters, the 900 series.

First of this voltmeter line is the Model 910, an ultra-stable high accuracy, automatic, differential input instrument. The model 910 covers from 0.001 to 1099.0 vdc, with an accuracy of 0.005 percent of reading plus/minus one digit.

The standard Model 910, without accessories is priced at \$2,175.00. Full specifications are available from Stevens-Evans, Inc., 3801 Hicock Street, San Diego, California.

A low cost two-way radio test set and combination crystal checker is announced by **SECO Electronics, Inc.**, 1201 S. Clover Drive, Minneapolis, Minnesota.

The Crystalign Meter Model 500A tests 20-40 Mc overtone type crystals, 1-20 Mc fundamental type crystals and 400-500 low frequency i.f. types. A factory calibrated accessory is available for testing radio frequency output of crystals in-circuit.

The Model 500A also indicates modulation, RF field strength, audio output across voice coil and beat note in RF comparisons. It will generate a crystal controlled RF signal with a 40 cps tone modulated note and will serve as a 0.05 V audio frequency source. It checks current ranges from 0-5 vdc and 0-1-50-100 madc. The factory calibrated RF probe allows the unit to be used as an RF voltmeter for 0-25 V and as an RF wattmeter for 0-10 watts.

Price on the base unit, Model 500A, is \$48.95 net. It operates from two C cells.

COMMUNICATIONS EQUIPMENT

A new low-cost ship-to-shore and ship-to-ship radio telephone has been announced by **Outercom Electronics Corporation**, 75 Providence Road, Charlotte, North Carolina.

The new 35 watt marine radiotelephone has been FCC type-accepted for marine mobile service, is available in single and multi-channel groupings.

The two-channel model is generally equipped for operation on 156.3 Mc/s for intership communication and 156.8 Mc/s for calling and safety. Operation is from 6 or 12 vdc, 117 vac. It may be used on board ship or on shore, A remote control unit is available.

Motorola has announced their first transistorized two-way radio designed for operation in the UHF band 450 to 470 magacycles.

The mobile unit, called the MOTRAC FM Radiophone, is featured in a new line of UHF equipment which also includes 65 and 100 watt base stations, standard model repeater stations, and a new high-gain antenna.

Available in 25 and 35 watt models, the new UHF transistorized mobile radio is an extension of Motorola's MOTRAC line. The radio features complete transistorization of the power supply and receiver and partial transistorization of the transmitter.

CATV-CCTV

A new broad-band amplifier for television and FM, the MLA-FM, has been introduced by **Blonder Tongue Laboratories, Inc.** Similar to the earlier MLA-b, now operating in scores of MATV and small CATV systems, it offers the added feature of covering the entire FM band.



The high gain, high output VHF amplifier is especially designed to overcome coaxial cable and distribution system losses in television and FM master antenna systems without signal degradation. Net price on the MLA-FM is \$101.00 and is available with ruggedized tubes at slightly higher cost.

A series of new multi-set couplers for quality TV reception have been announced by Blonder-Tongue Laboratories. The new Color-4 provides excellent reception on up to four TV receivers from a single television antenna. The manufacturer recommends the new couplers for color reception as well as black and white. In addition to the four set coupler, a two set coupler is also available.

Entron, Inc., Silver Spring, Maryland has introduced their latest development in high band head-end amplifiers for use in CATV systems.



Model APH-D, ADASTRIP, is a high gain amplifier designed with long term reliability in mind. The unit has 60 db gain with a noise figure of 7 db. Input and output VSWR's are 1.2:1 or better. 10,000 hour tubes are utilized.

One APH-D strip is required for each high band channel added to a system. It includes an ALC circuit and high rejection of adjacent channel signals. Complete information is available from Entron at 2141 Industrial Parkway, Silver Spring, Maryland, or the unit may be seen at the NCTA convention, Entron booth.

The **Jerrold Electronics Corporation** has introduced a new wall outlet tap-off. The unit, called the 'Ultra-Tap', has been stylized, ruggedized and engineered to fit nearly every application

where reliability and precision performance is required.

Two connector models are offered, one for 300 ohms and the second for 72 ohms.

The isolation networks can be removed, to change values, and replaced without disconnecting the distribution system cables.

Isolation networks range from 11.5 db to 35 db. Feed-thru specifications range from 0.2 db to 1.0 db. Ultra-Tap replaces Jerrold's previous line of tap-offs: Series LT-310, LT-77, 1431 and 1477.

BROADCAST EQUIPMENT

A vest-pocket, wireless microphone, all solid state, and weighing in at 1/2 pound, has been announced by the **Minatronics Corporation** of Pittsburgh, Pennsylvania. Range exceeds 200 feet for noise free operation. The unit is designed primarily to give freedom of movement to performers and others who find it hampering to be tied down with a microphone cable.



Frequency range of the wireless mike is 27.23 to 43 magacycles with 20 kc audio deviation.

The data sheet describing the new can be obtained by writing to the manufacturer at 1515 West Liberty Avenue, Pittsburgh 26, Pennsylvania.

Collins Radio Company, Broadcast Division, Cedar Rapids, Iowa has announced a pair of new stereo-FM transmission units. Model 900C-1 is a stereo modulation monitor that assures accurate measurement and monitoring of FM stereo multiplex programming. It measures main channel, sub-channel, pilot carrier and SCA carrier insertion. It also measures stereo separation, cross talk and pilot phase. The unit is completely transistorized with plug-in circuit cards. It fits into a standard 19 inch panel and requires 10 1/2 inches of rack space.

Collins' second stereo broadcasting unit is their model 26U-2 stereo limiting amplifier, designed to permit maximum modulation with a minimum of distortion. The stereo limiting amplifier may be used for single channel limiting, two monaural channels or for stereo broadcasting.

METERING EQUIPMENT

A new, improved version of the **Sadelco** TV and FM field strength meter (Model FS-1-B) has been announced by Sadelco, Inc., 601 West 26th Street, New York 1, New York. The completely transistorized portable field strength meter weighs just three pounds, and covers on three separate ranges the low band, high band TV channels, and the FM broadcast band.

An external switch position is outfitted for a UHF tuner.

Four sensitivity scales are incorporated into

PLACES . . .

Cable Television Ltd., Montreal, Quebec (the world's largest CATV system) reports 368 new subscribers in the 30 day period just lapsed, bringing the new total to approximately 26,000. If you think that's a bushel full, consider the potential number of drops for this system . . . 200,000! The current project underway involves running a subsidiary line into Westmont, a sub-division with 8,000 homes all its own. They are adding two more VHF communications radios to the systems, making a total of 8 used on maintenance vehicles. In their closed circuit television studios, Cable TV Ltd., has added new Zoom lenses to all cameras for their closed circuit channel 9 telecasts. They plan more live telecasts of Montreal sporting events this summer.

Lahey Electronics, Inc., Bowling Green, Kentucky has added 4 Blonder Tongue model MUC converters and 2 MLA broadband amplifiers to existing MATV installations, in the past 30 days. Tom Lahey, President, reports some 12,000 students will now be enjoying CCTV-MATV in the 8 complete school systems they have installed.

Texas Video, Inc., Palestine, Texas reports adding 21 new subscribers in the past 30 days. The total is now 1660. Dale Hardesty is a new Chief Technician for the firm. Norm Williams, manager, reports old amplifiers were given the heave-ho during the month and new Jerrold amplifiers installed. They are installing new "408" braided trunk line, and laying the ground work for a four channel microwave-fed conversion. They plan to go before the Palestine City Council and request a rate increase, to help defray the Microwave costs, this month.

Construction Electronics, San Mateo and Santa Clara Counties, California reports 1 system installed with 20 units in (MATV) and 5 systems underway with a total of 182 drops involved. The firm is new in the MATV business, and is located at 734 Overland Way, San Jose, California.

Teleglobe Pay-TV system reports on its progress in the New York City pay TV project. One mile of audio line has been installed to date to demonstrate the audio and

data transmission features of the closed circuit pay TV system, as designed by the firm.

THINGS . . .

Tommy Moore, Fort Worth Tower Company, Fort Worth, Tex., reports on the progress his firm had made in recent weeks completing a number of CATV system head end site towers. Completed in the past 60 days were: Georgia TV Cable Co., Vidalia, Georgia (400 foot tower); Rowley-United Theatres, Capshaw Mountain, Decatur, Alabama (300 foot dual purpose receiving and microwave tower); John Foster, Attica, Indiana (350 foot dual purpose microwave and receiving tower); Kleer-Vu Tenna, Goliad, Texas (400 foot receiving tower); and Midwestern Company, Dublin, Texas (200 foot receiving tower).

Fort Worth Tower has also completed microwave system towers (five towers and six buildings) for a multi-hop, multi-channel link running from Brownwood, Texas to San Angelo, Texas.

The Seventh Annual Convention and Trade Show of the National Community Antenna Television Association of Canada was held at Chateau Laurier, Ottawa, Canada May 7-10.

The convention was held in Ottawa so as to be able to acquaint government regulatory bodies with the scope of the industry, in so much as regulation of CATV by the Board of Broadcast Governors is expected sometime this year.

AINSLIE Corporation, designers and manufacturers of microwave antennas and associated equipment has announced the appointment of two new representing firms. West Eleven, Inc., will represent Ainslie in the state of California; The Gene French Company will represent Ainslie in Arizona, New Mexico, Colorado, Utah, Wyoming, S.E. Idaho, S. Nevada and El Paso County, Texas.

Outercom Electronics Corporation has announced the appointment of James Goodwillie as Regional Manager, North Central Region, with offices in Milwaukee, Wisconsin.

COMMUNICATION SYSTEMS . . .

A \$617,000 contract for two-way radio equipment has been ordered from Motorola by the **Iowa State Highway Commission**. The contract calls for 29 county highway departments becoming newly equipped. Four VHF frequencies are being used to cover the state,

and an elaborate system of tone signalling is included in the system. The contract will supply 72 base stations and 416 transistorized MOTRAC mobile units to the state.

Completion of a 14-year-old communications program capped the recent \$100,000 order for two-way radio equipment placed with Motorola by the Northern Pacific Railway Company.

The program to equip all rolling stock with complete two-way radio facilities, began in 1949.

Meredith Electronics, Warren, Ohio (KCT 721) reports adding one new system including two new mobiles during the past 30 days. One additional system is pending.

Coast Communications, Coos Bay, Oregon (KDB 852) added one new technician, 2 new Gertsh FM-7 Frequency Meters and a Motorola Mobile relay with 17 mobiles during the past 30 days! Two 450 Mc/s control systems are in the plans for the coming 30 day period.

A radio technician from Aurora, Illinois has been honored as the 1,000th graduate of a specialized home study course on two-way radio servicing conducted by the Motorola Training Institute.

The 1,000th graduate is Ronald W. Osterland, owner of a two-way radio service station.

A 1948 graduate of the American Radio and Television School, Osterland spent many hours of home study to complete the 38 lesson MTI course. In addition to maintaining an "A" average on individual tests, Osterland earned a 90 percent on the final comprehensive examination.

The two-way radio course, first offered in 1960 by Motorola, is an advanced study of the theory and servicing problems in FM communications equipment, including newly developed transistorized equipment.

Million Electric Company, Inc., Espanola, New Mexico reports new Lampkin 105B and 205A meters installed recently. 2-48 megacycle systems and 4-450 megacycle were also installed.

ATTENTION-SYSTEMS!

Video-Communication Journal provides a handy tear-out post card on heavy card stock between pages 32 and 33 of this issue. CATV-MATV contractors, two-way system contractors and installers are urged to report news of their business operations on these cards. One card is provided for TV reports, a separate card is supplied for two-way reporters.

Now for the First time...

SEMI-Flexible cable good enough



JT-1000 SEAMLESS ALUMINUM SHEATH



JT-400

to compete with our own FLEXIBLE cable!

JT-1000 series cables set the new standard of the industry. With this seamless aluminum tube sheath cable, you can install cable for an all-band system at the same cost you paid for a low-band system (decibel-for-dollar basis). Demands made by all-band systems require cable impedance and attenuation uniformity to be better than ever. For example, average VSWR must be 1.05:1.00, although this was previously impractical and unobtainable on a production basis at a cost everyone could afford. Result: Times has developed a semiflexible cable that is good enough to compete with our flexible cable on its own terms . . . terms that set the standards of the industry.

JT-400 STRIP-BRAIDED FLEXIBLE COAXIAL CABLE

Type	Nom. Outside Diameter (in.)					Attenuation (Nom.) (db/100 ft)		Ship. Wt. (lb./1,000 ft)
	Conductor	Dielectric	Shield	2nd Shield	Jacket	Channel 6	Channel 13	
JT-400S	0.114	0.525	0.536		0.632	0.77	1.3	147
JT-400D	0.114	0.525	0.536	0.547	0.632	0.77	1.3	167
JT-404S	0.064	0.285	0.296		0.407	1.31	2.2	64
JT-404D	0.064	0.285	0.296	0.307	0.407	1.31	2.2	73
JT-408S	0.081	0.373	0.389		0.460	1.01	1.6	89
JT-408D	0.081	0.373	0.389	0.400	0.460	1.01	1.6	101

JT-1000 SOLID-SHEATH SEMIFLEXIBLE COAXIAL CABLE

Type	Nom. Outside Diameter (in.)				Attenuation (max.) (db/100 ft)		Ship. Wt. (incl. reel) (lb./1,000 ft)
	Conductor	Dielectric	Un-Jacketed	Jacketed	Channel 6	Channel 13	
JT-1750	0.1400	0.680	0.750		0.60	1.03	280
JT-1750J*	0.1400	0.680	0.750	0.850	0.60	1.03	330
JT-1500	0.0980	0.450	0.500		0.84	1.40	130
JT-1500J*	0.0980	0.450	0.500	0.580	0.84	1.40	160
JT-1412	0.0752	0.362	0.412		1.05	1.65	100
JT-1412J*	0.0752	0.362	0.412	0.480	1.05	1.65	120

*Cable overall jacketed with Xelon.



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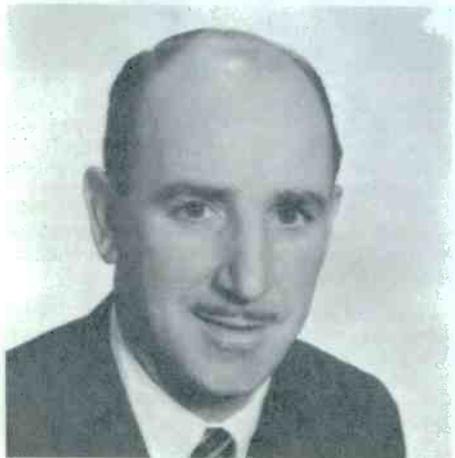
NCTA Convention
(Continued from Page 13)



Jack E. Pryor is now manager and owner of Hornell (New York) Television Service. As a pilot officer in the United States Airforce, he flew in the Ferry Command and the Alaskan Division of the Military Air Transport. He has owned Pryor Flying School, Inc. for the past 20 years and taught more than 1,300 Navy V-5 pilots.



Fred J. Stevenson left the United States Airforce as a Lt. Colonel in 1948 and began managing radio station KHOG in Fayetteville, Arkansas, a post he held until 1961. He is the President and principle owner of Rogers TV Cable Company, Rogers, Arkansas at present. He organized the South Central CATV association and served as its president from 1958 through 1960. He has served on the NCTA Executive Committee and the NCTA Public Affairs Committee.



Albert Joseph Ricci serves as President of the Better TV, Inc. firm with systems in Keene, N.H., Bennington, Vermont. He also owns Ricci's Melody Shop in Keene, Pastime Lanes in Keene and Paire's Market in Keene. His system in Keene was one of the first to carry wide band 9 channel television in the United States.



Gene W. Schneider graduated from the University of Texas in 1949. He serves as General Manager of the Community Television Systems of Wyoming, Inc., a post he has held since 1953, has served as an officer of CATV systems in Rawlins, Wyoming; Farmington, New Mexico. He is also interested in a CATV system in Fredonia, Kansas.



Ralph 'Bud' Weir was a partner in radio station KJCK in Junction City, Kansas from 1949 through 1951 and has been owner-manager since that date. He has been president of Junction City Television since 1958, and was a National Director of Daytime Broadcasters Association in 1955, 56 and 57. He is currently interested in CATV operations throughout central Kansas.



John Walsonavich is owner of Service Electric Company and Service Electric Microwave, Mahanoy City, Pennsylvania. He is interested in CATV systems in Tamaqua, Pennsylvania; Bethlehem and Allentown, Pennsylvania; and Wilkes Barre, Pennsylvania.



Robert J. Tarlton established a radio and electronics sales and service business in 1933 and he operated it until 1950. He was one of the earliest users of the master antenna concept, which he pioneered in Lansford, Pennsylvania. He began experimenting with apartment house amplifiers built by Jerrold, in 1949, and soon had a master antenna system working for his valley town. He organized the Panther Valley Television Company, Inc. in 1950 and was the first operator to provide multiple channel (3 station) television over a single cable, in 1950. He joined the Jerrold Electronics Corporation in 1952 and helped pioneer CATV installations from coast-to-coast. He called, with others, the initial 1951 meeting in Pottsville, Pennsylvania, the first gathering of CATV operators, and was soon on the way with the NCTA. He was first elected to a three year term with the NCTA Board in 1957.

Carl M. Williams attended law school at the University of Wyoming. He is President of Televents Corporation, Systems Management Company, Western Video, Inc.; Laguna Video, Inc.; and formerly practiced law in Casper, Wyoming.

(Continued on Page 38)

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Presently heading up CATV organization. Seeks more challenging and active opportunity. Thoroughly experienced in all phases of CATV operations, preparation of franchise applications, pole contract, negotiations, construction, rebuilding, promotion, public relations, budget, projections, etc. Complete autonomous operation of systems large and small. Reply in confidence to Box 40. VI-COM — P.O. Box 1557 — OKLAHOMA CITY, OKLA.

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- BROADCAST QUALITY GENERAL ELECTRIC CAMERA
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An entirely new and economical broadband amplifier with a gain of 10 DB on the high band and low band, and 8 DB on the F.M. band. This amplifier has 75 ohms input and output and is ideal for small apartment and motel installations.



Here are all the features you want

- ★ LOW NOISE 75 OHMS INPUT
- ★ DIP SOLDERED
- ★ SELF POWERED
- ★ ULTRA-STABLE CIRCUITRY
- ★ EASY TO INSTALL

PLUS PACEMAKER II



The same basic design as the well known Pacemaker amplifier, with the additional features of separate gain controls for both high and low bands. Gain may be varied over a range of 10 db on either band.

- ★ BROADBAND — Television channels 2 thru 13 and FM.
- ★ COMPACT—well ventilated completely covered, tamper-proof.
- ★ CONSERVATIVELY operated tubes and components, long trouble-free life expectancy, lowers maintenance cost.
- ★ DIP-SOLDERED—eliminates wiring errors and poor soldering.

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NCTA Convention
(Continued from Page 37)



Frank P. Thompson retired from the U.S. Marine Corp as a Major, following a service record as a Marine Corp pilot. He has operated a summer resort in Northern Minnesota, a Soft Water Service Business, served as a high school teacher for 9 years. He has also served as Vice President of CATV systems in Rochester, Minnesota, and Brainerd, Minnesota, and is in charge of operations for CATV systems in Palm Desert, Rancho Mirage, Cathedral City and Indio, California.



Sidney E. Young graduated from Business College in 1935. At the present time, he operates CATV systems in 5 towns in Vermont plus the city system in Rutland, Vermont. He constructed 7 CATV systems in Vermont from 1953 through 1959. He was the first President of the New England CATV Association, from 1953 through 1956.

The following NCTA Board of Directors are missing from this summation because of a lack of photographs or biographical material: Douglas B. Danser, Naples, Florida; Leon Papernow, Beverly Hills, California; R. L. Stoner, La Grande, Oregon and Franklin R. Valentine, Jr., Dallas, Texas.

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FM TAP Model IWD-1 TV-FM is a non-resistive attenuator network for use in tapping off from the feeder thurline to individual FM subscribers. Complete AC isolation, only 0.5 db thurline attenuation, FM tap off band 88 to 108 mcs.



TWO-WAY SPLITTER 20 db isolation between outlets. Completely shielded eliminating pick up. Matched 75 ohm input and two 75 ohm outputs. 3.5 db feedthru line loss. Flush mounting metal container. MF-61 connectors, three MF-59 males supplied with unit.



TWO-WAY SPLITTER 20 db isolation between outputs. Completely shielded eliminating pick-up. Matched 75 ohm input, two 75 ohm outputs. 3.5 db loss each outlet. Flush mounting waterproof container. MF-61 connectors, with three MF-59 males supplied.



FOUR-WAY LINE DIVIDER 20 db isolation between outlets. Completely shielded eliminating pick up. Matched 75 ohm input, four 75 ohm outputs. 6 db loss per output, 7 db thurline loss. MF-61 connectors, with five MF-59 male connectors supplied.



MATCHING TRANSFORMER Capacitors provide positive line isolation. Completely shielded eliminating stray pick-up. 72 to 300 ohms. Bandwidth 4 to 300 mcs. 6 db step-up voltage gain. MF-61 input connector, spade fittings output, plus MF-59 supplied.



TWO-WAY SPLITTER 20 db isolation between outputs. Completely shielded to eliminate stray pick-up. Matched 72 ohm input, and two 72 ohm outputs. 3.5 db thru loss. Strandumtaining metal waterproof container. UHF type fittings.

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complete with
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- Weighs only 3 lbs.

- ◆ Fully TRANSISTORIZED Battery Operated
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Most complete and moderately priced line of two-way, UHF equipment in the 450-470mc field. TR505 is a self-contained, dash-mounted unit. TR506 consists of dash-mounted Speaker and Control Head plus trunk-mounted base station. Output up to 10 watts on either unit. Up to 35 watts (Base Station) with optional A509 RF Amplifier.

TR507 Repeater-Mobile Relay-Base Station

FOR MOBILE RELAY OR CONTROL LINK APPLICATION

Extends mobile-to-mobile coverage without separate base station by automatic re-transmission of UHF signal. Features grid-controlled transmitter keying, either 19" rack mounting or 26" weatherproof cabinet, and 10-watt output raised to 35 watts with optional A508 Amplifier.

117C903 Remote Control System

FOR WIRE LINE CONTROL OF REMOTE BASE STATION

An extremely versatile system designed to control radiotelephone station equipment through a two-wire circuit. Includes Remote Control Unit, Switching Line Amplifier, and Desk Type Microphone. Selects from 3 channels or transmitters, amplifies and reproduces receiver audio, adjusts squelch, provides multiple remote control, and serves as intercom.

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Prospectus 1963
(Continued from Page 11)

legal hassle is expected to take another 30 months to three years before it reaches a Supreme Court determination. The CATV operators defense in this case is built on the concept that the systems involved are nothing more than an extension of a jointly pooled effort of the citizens in the two towns, to erect a common, master antenna.

(B) Any official NCTA backed move at this stage, to broaden the CATV concept into areas of pay TV or Closed Circuit origination TV would only add fuel to the fire for the prosecution, which is seeking among other things, to determine that the CATV systems are anything but a mere extension of the customers' antennas.

(C) A similar case involving a CATV system in Idaho has identical overtones, with one switch. In the Idaho case, the television stations located in **the town** the system serves is seeking to have the CATV system cease carrying programs from Salt Lake City stations, which are in direct competition to the Idaho broadcasters. The Idaho case boils down to whether or not a court can enjoin a CATV system from providing so-called competitive television to local telecasters.

(D) And finally, the Federal Communications Commission is seeking to adopt powers which would, roughly speaking, solve the Idaho case. The FCC wishes to have broad regulatory powers over CATV systems, especially those systems operating in towns where there are one or more local telecasters, so as to require the CATV systems to not duplicate the local stations' network programming with network programming from out-of-town sources. In a sense, the FCC seeks to make CATV operations in many parts of the country part-time operations.

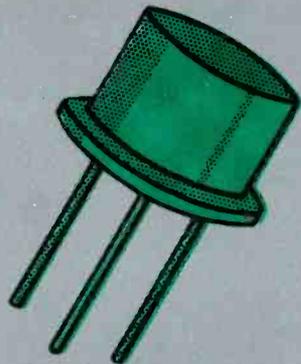
WHICH LEAVES US WITH . . .

A problem. At the risk of throwing a monkey wrench into the pending legislation (FCC backed) and litigation (NCTA paid for), the new blood, the so-called progressive element of CATV, is anxious to open up **any** new avenues which will result in increased revenue and system net worth. Pay television closed circuit origination television, background music; the method is relatively un-important to them.

The cleavage lines have never been well determined, and probably never will be. History, after all, speaks pretty well for the situation. Without complete solidarity behind the national organization and its fight for what the will of the majority insists upon, any open breaks would only serve to weaken the ranks of the majority as well as the minority.

And this fear of wholesale slaughter from without is a powerful force to reckon with. It has managed to hold the NCTA together from its early days. It will undoubtedly continue to hold the industry together.

But the lobbying for a broader concept in CATV continues, and there will undoubtedly be considerable discussion on the subject at this year's Seattle convention.



GREATLY IMPROVED PROFIT PICTURE

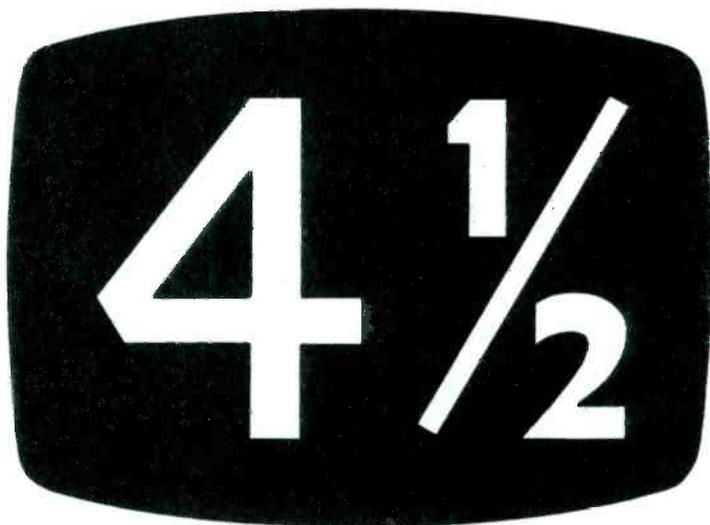
Lower installation and maintenance costs mean higher profits for your system. CAS manufactures the very finest solid state All-Band CATV equipment for your use. The CAS all-transistor equipment saves you money . . . by decreasing your installation costs, enabling use of remote powering and, of course, **completely eliminating** service costs due to tube failure. Call or write for details.

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By supplying background music to local merchants over "between channel" frequencies, the CATV operator can add a big plus figure to his P & L statement — and do it with a minimum of capital outlay. The Tape-Athon Librarian tape player is just the ticket for supplying **real** professional background atmosphere. No vocals, no commercials, no interruptions for station breaks. It's fully automatic and built for 24-hour-per-day operation. And under Tape-Athon's exclusive lease plan you can be assured of a continuing supply of fresh new music — music designed for the greatest listener appeal — music you can profitably sell to industrial plants, supermarkets, department stores, professional offices and a broad variety of commercial customers.



Write or call today for details on the Librarian
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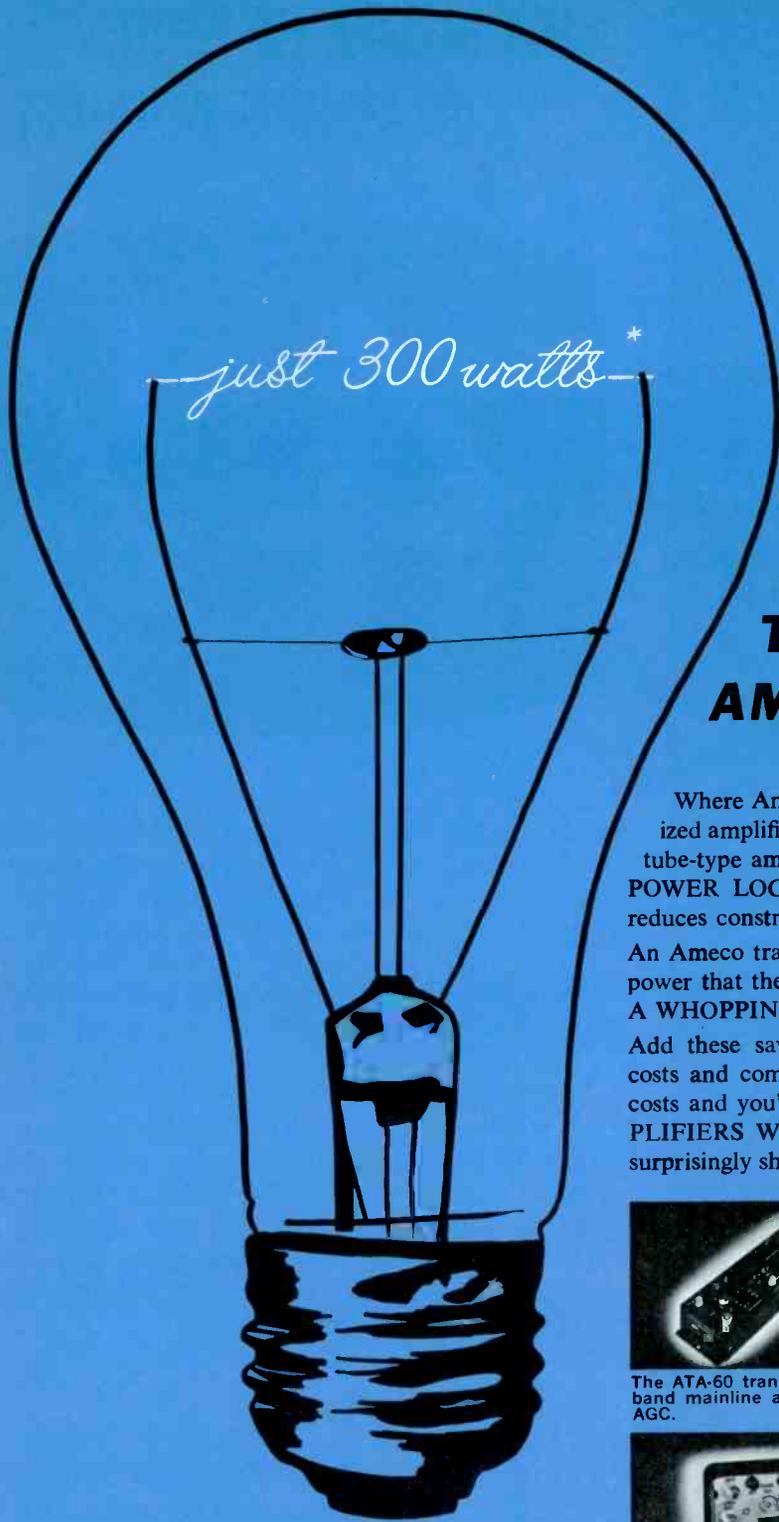
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The ATA-60 transistorized all-band mainline amplifier with AGC.



The ATB-10-C transistorized all-band bridging amplifier.



The ATM-20-C transistorized all-band line extender amplifier.



The ATPS regulated 24V AC remote power supply.

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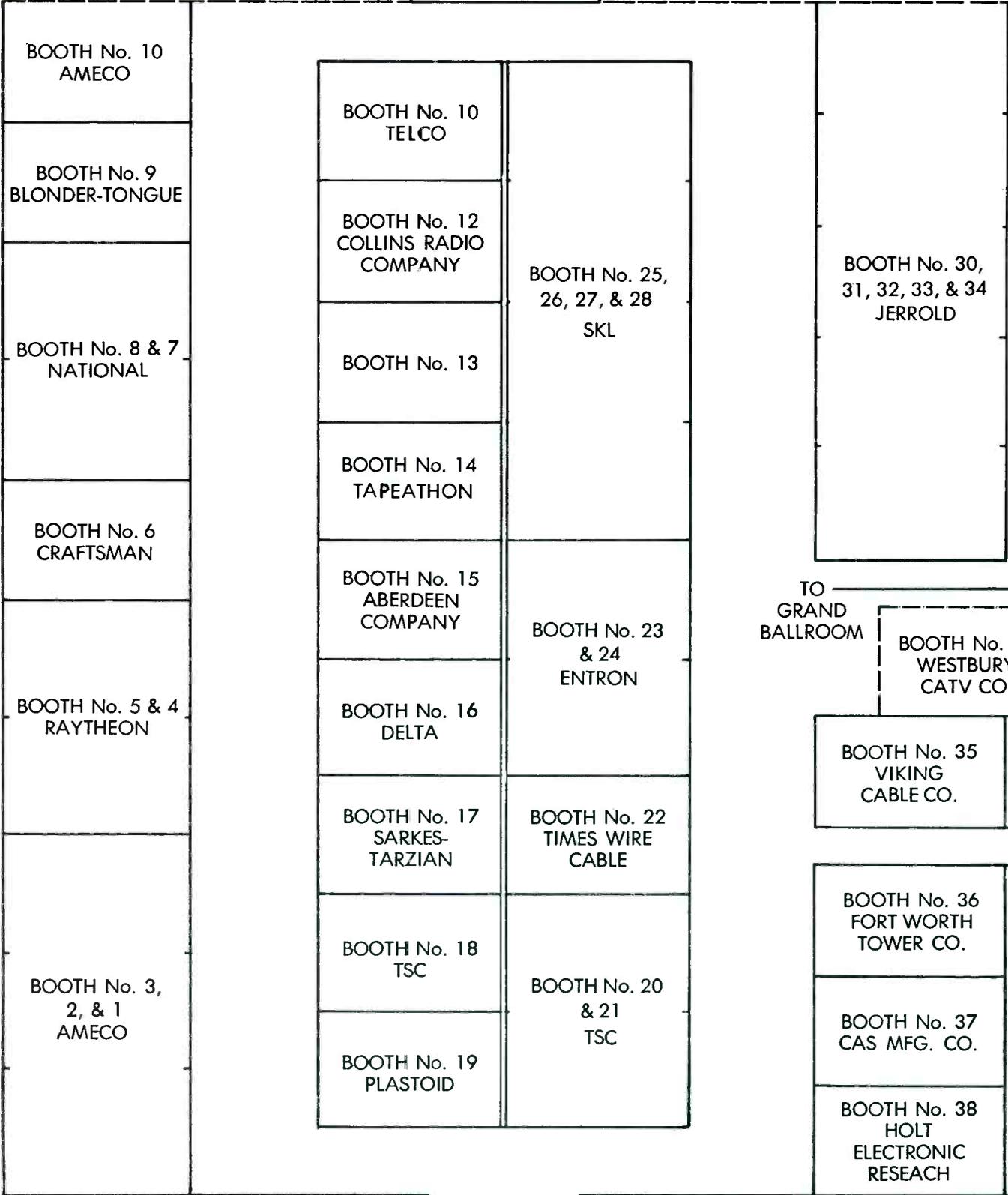
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Log Book

- May 14-16—Assembly and Symposium of Radio Technical Commission for Marine Services. Hotel New Monteleone. New Orleans.
- May 14-17—Annual meeting of Industrial Communications Association. Eden Roc Hotel. Miami Beach.
- May 18—Organizational meeting of Northcentral Region of National Mobile Radio System. Holiday Inn. Lawrence, Ind. (Indianapolis.)
- May 20—New FCC special industrial rules become effective permitting farmers and ranchers to use their radio facilities in connection with the gathering or processing of products grown or raised for them by others, and permitting deliverers of fuel and ice to consumers to use their radios in connection with the servicing of customers' equipment.
- May 20—Comment deadline on FCC proposal to drop the present requirements that an operator of a base or fixed station in the public safety radio services hold at least an FCC restricted radiotelephone operator's license.
- May 20—Comments due on FCC "notice of inquiry" as to whether additional frequencies should be provided for marine bridge-to-bridge communications.

- June 4—Annual meeting of National Petroleum Radio Frequency Coordinating Association. Statler Hotel. Washington.
- June 5-6—Semi-annual meeting of American Petroleum Institute Central Committee on Communications Facilities. Statler Hotel. Washington.
- June 7-14—National Community Television Association annual convention. Seattle.
- June 11—Spring Meeting of National Association of Manufacturers' Committee on Manufacturers Radio Use. Sheraton-Carlton Hotel. Washington.
- June 15—Persons previously eligible in the special industrial radio service, who received licenses prior to June 15, 1958, but no longer eligible, must transfer to other radio services in which they are eligible.
- June 18-21—Annual meeting of National Committee for Utilities Radio. Jung Hotel. New Orleans.
- July 1—Last day FCC "Form 400-A" can be used in applications for certain minor changes and for extension of time to construct industrial, public safety and land transportation stations. Form 400 now required.
- July 16-19—Annual Conference of Forestry, Conservation Communications Association. Executive Inn. Dallas.
- Aug. 13-16—National APCO Conference. Leamington Hotel. Minneapolis.
- Aug. 16-19—Annual Convention of National Mobile Radio System. Disneyland, Calif.
- Oct. 9-11—Annual Meeting of Communication & Signal Section of Association of American Railroads. Chicago.
- Oct. 24-25—Annual meeting of Executive Committee of Forest Industries Radio Communications. Washington.
- Oct. 31—Mobile radio users must meet full narrow band technical standards of FCC.
- Nov. 1—Fire radio systems must move off frequencies allocated to the police radio service.
- Jan. 1, 1964—FCC announced date for beginning of requirement for payment of "filing fees" along with applications to Commission.

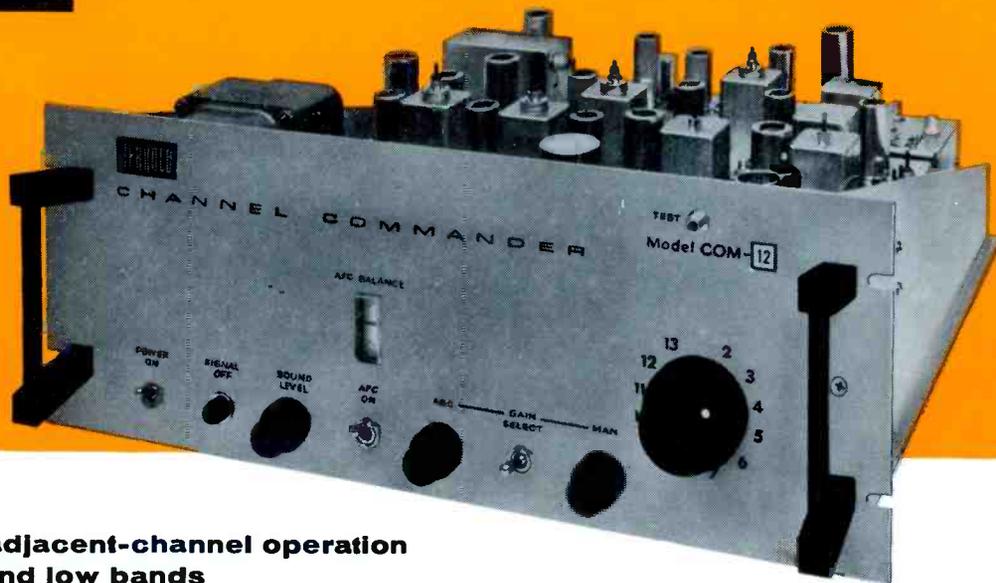
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12
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CHANNEL COMMANDER



- **Permits adjacent-channel operation on high and low bands**
- **Single unit processes, controls, and delivers antenna signal on any channel—including same channel**

You can now offer CATV reception on all twelve VHF channels with no adjacent-channel interference! By adding a Jerrold Channel Commander to your head end for each adjacent channel desired, you achieve 12-channel operation with minimum equipment.

The Channel Commander is a complete, compact unit which processes, controls, and delivers clear, interference-free signals on any desired VHF channel, including direct operation on the received frequency in both the high and the low bands.

In conjunction with Jerrold microwave and all-band-system equipment, the Channel Commander gives you command of the entire VHF band, lets you offer CATV subscribers the widest choice of entertainment possible over their present TV sets.

Channel Commander's compact modular design and compatibility with your present head-end equipment lets you "go 12 channels" immediately or in channel-at-a-time stages. Call your Jerrold factory representative or write for complete technical data.

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ELECTRONICS CORPORATION

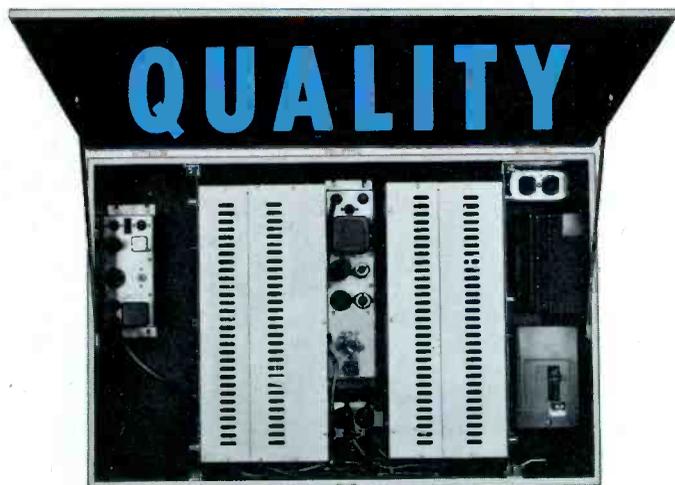
Community Systems Division

A subsidiary of THE JERROLD CORPORATION

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1042 Terminal Way
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When the name
outside is ...



QUALITY

is everywhere
inside!

A Word to the Wide Band Wise About Quality and Performance ...

The top quality of SKL CATV equipment lies only partly in the selection of its premium components, the painstaking care in its assembly and the rigid demands of its high test standards. Such quality really starts with the unique engineering concepts applied in the equipment's design and ends with the unparalleled reliability of its performance.

This performance has a long record. It began more than a decade ago with SKL's introduction of the wide band distributed amplifier system for CATV. It has maintained SKL's unquestioned leadership in all-channel systems. Today, it puts SKL years ahead in the wide band field.

Equipment dependability and lack of obsolescence make SKL wide band systems extremely economical to maintain and operate. Their installation costs are surprisingly low, too.

Call on our experience for your wide band system. You'll get top quality and performance in return!

Visit our exhibit at the NCTA Convention in Seattle, June 10-14,
booth numbers 25, 26, 27 and 28.



SPENCER-KENNEDY LABORATORIES, INC.

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